

1. The authority, organization, and infrastructure of the veterinary services organization in the region.

a. What veterinary force is available in the region for carrying out regulatory programs for livestock diseases?

There are three categories of veterinarians involved in the statewide testing program: Michigan Department of Agriculture (MDA), United States Department of Agriculture (USDA), and state licensed, federally accredited private practicing veterinarians eligible to conduct testing under a state authorized fee basis or contract program.

MDA

The Animal Industry Division (AID) has a staff of 53 people under the direction of State Veterinarian and Division Director, Dr. Steven Halstead. This includes: 19 licensed veterinarians, 1 licensed veterinary technician, 1 wildlife biologist, 1 laboratory technician, 9 laborers (animal handlers); 2 enforcement officers, 2 identification coordinators, and 20 data personnel, office administration, and support staff. Thirty-nine AID staff members are assigned to work full-time, or the majority of their time, on the Bovine TB Eradication Project. There are currently an additional 7 field veterinary, 3 laborer, and 1 veterinary technician positions in the process of being filled. All division personnel are available to work on the bovine tuberculosis eradication program as needed (Attachment 1)

USDA, ANIMAL AND PLANT HEALTH INSPECTION SERVICE (APHIS), VETERINARY SERVICES (VS)

USDA, APHIS, VS and MDA, AID work cooperatively in the Bovine Tuberculosis Eradication Program. Program planning, development, implementation, investigation, and enforcement are accomplished by joint effort of these two regulatory agencies. Veterinary Services personnel are under the direction of Dr. Reed Macarty, Area Veterinarian in Charge (AVIC). USDA, APHIS, VS has a staff of 40 persons dedicated to working on bovine tuberculosis in Michigan including 2 veterinary managers, 1 veterinary epidemiologist, 11 field veterinarians, 22 Animal Health Technicians, 1 tuberculosis herd accreditation veterinarian, 1 animal identification coordinator, and 2 administrative support personnel. Other USDA, APHIS, VS staff may work a portion of their time on the bovine tuberculosis issue. In addition, three USDA, APHIS, OIE investigators are stationed in Michigan, one of whom works primarily in the bovine tuberculosis program. (Attachment 2)

STATE LICENSED PRIVATE ACCREDITED FEE-BASIS VETERINARIANS

The private veterinary industry in Michigan consists of approximately 2400 practicing licensed veterinarians in Michigan. Of these veterinarians, there are currently 360 bovine tuberculosis fee-basis veterinarians approved to conduct bovine tuberculosis testing activities under state contract. These veterinarians are required to attend tuberculosis training programs, and are monitored for compliance with tuberculosis testing requirements.

b. Are all officers veterinarians?

All testing for tuberculosis is administered by state or federally employed graduate veterinarians or by private veterinarians licensed and federally accredited in the state of Michigan.

c. Are any non-veterinary inspectors under the direct supervision of veterinary officers?

All nonveterinarian inspectors are supervised by state or federally employed veterinarians. There are no lay persons involved in a regulatory role outside state or federal employment.

d. What are the required procedures for specimen collection?

All bovine tuberculosis testing and tissue specimen collections are performed according to 9 Code of Federal Regulations (CFR), the *Uniform Methods and Rules (UM&R) for Bovine Tuberculosis Eradication*, and the Michigan Animal Industry Act, P.A. 466 of 1988, as amended. (Attachment 3)

e. What diagnostic procedures and techniques are routinely followed for each disease agent of concern?

Diagnostic procedures and techniques utilized in Michigan for the bovine tuberculosis eradication program follow the State-Federal Cooperative Program for Eradication of Bovine Tuberculosis in Cattle and Eradication of Bovine Tuberculosis in Cervidae.

Caudal Fold testing may be performed by state and federal animal health veterinarians, and Michigan licensed federally accredited veterinarians are approved to officially Caudal Fold tuberculosis test cattle for private fee. All Caudal Fold test suspect cattle are reported to either state or federal animal health officials according to procedures in 9 CFR, the UM&R for Eradication of Bovine Tuberculosis, and state law. State and federal animal health veterinarians conduct Comparative Cervical or Gamma Interferon tests on all caudal fold test suspects reported by private veterinary practitioners within the time frames allowed by the appropriate UM&R. Training programs to approve private veterinary practitioners to collect and submit Gamma Interferon testing samples are currently being developed.

For herds where suspect Comparative Cervical or Gamma Interferon test animals are found, a quarantine is imposed by the state according to the UM&R. The herd in which the suspect animal resides remains quarantined while a second Comparative Cervical or Gamma Interferon test is conducted. Alternatively, the MDA Director may order destruction of the test suspect animal(s), with subsequent submission to the Michigan State University Diagnostic Center for Population and Animal Health (DCPAH) for post mortem diagnostics, and indemnity is paid to the producer.

If the suspect animal is negative on the second Comparative Cervical or Gamma Interferon test, the herd quarantine is released. If the suspect animal is positive on the second Comparative Cervical or Gamma Interferon test, the designated tuberculosis epidemiologist classifies the animal(s) as a reactor, and the Director orders the animal(s) destroyed and indemnity is paid to the producer.

When test suspect or reactor animals are necropsied, appropriate biosecurity measures are followed and diagnostic tissues are harvested either at the DCPAH or at a USDA, Food Safety and Inspection Service (FSIS) inspected slaughter establishment and forwarded to USDA, National Veterinary Services Laboratory (NVSL) through Dr. Reed Macarty, Area Veterinarian in Charge (AVIC).

Test suspect or reactor animals ordered destroyed are sent to MSU, DCPAH under official seal on a Veterinary Services Form 1-27. Tissues are collected at necropsy and sent to NVSL. The originating herd remains under quarantine. NVSL conducts laboratory analysis including histopathology, polymerase chain reaction testing (PCR) and bacterial culture.

If NVSL reports that the tissues are not compatible for bovine tuberculosis, and no gross lesions consistent with bovine tuberculosis were seen at necropsy, the herd quarantine is released with the understanding that culture on the tissues will still be conducted.

However, if NVSL reports that the tissue is tuberculosis compatible or suggestive and/or acid fast organisms are observed and PCR is positive for *M. Tb Complex*, the herd quarantine remains in place until a determination of affected herd status is made by the USDA Area Veterinarian in Charge and the State Veterinarian.

f. What laws, regulations, and policies are in effect? For example, is waste feeding permitted and, if so, what restrictions apply (such as cooking the waste to specific temperatures and durations)?

- P.A. 466 of 1988, as amended, Animal Industry Act (Attachment 3)
- Regulations for P.A. 466 of 1988, as amended, the Animal Industry Act (Attachment 4)
- P.A. 239 of 1982, as amended, Bodies of Dead Animals (Attachment 5)
- Regulations for Act 239 of 1982, as amended, Bodies of Dead Animals (Attachment 6)
- P.A. 284 of 1937, as amended, Licensing Livestock Dealers Act (Attachment 7)
- Regulation No. 128, Records Required of Livestock Dealers (Attachment 8)
- Regulation No. 119, Prevention and Spread of Livestock Diseases (Attachment 9)
- Bovine TB Eradication Project Strategic Plan (Attachment 10)
- Establishment of Zones for Bovine Tuberculosis; Identification, Testing, Permitting, and Movement Requirements (Effective June 1, 2004) (Attachment 11)
- Memorandum of Understanding Between the Michigan Department of Agriculture and the United States Department of Agriculture, Animal and Plant Health Inspection Service, Veterinary Services*, regarding Bovine Tuberculosis split state status designations (signed April 5, 2004) (Attachment 12)
- Bovine Tuberculosis State Status Designations (Map), Effective April 19, 2004 (Attachment 13)
- United States Code of Federal Regulations, Title 9, Part 77 – Tuberculosis
- Bovine Tuberculosis Eradication, Uniform Methods and Rules, Effective January 22, 1999
- Normal Agricultural Practices (Attachment 14)
- Reportable Animal Diseases, August 2002-July 2004 (Attachment 15)
- Governor John Engler's Executive Directive No. 1998-1 (Attachment 16)
- Michigan DNR Wildlife Conservation Orders (Attachment 17)
- P.A. 190, of 2000, Privately Owned Cervidae Producers Marketing Act (Attachment 18)
- Operational Standards for Registered Privately Owned Cervidae Facilities, May 2000 (Attachment 19)
- Privately Owned Cervid Tuberculosis Surveillance Requirements (Attachment 20)
- Tuberculosis Surveillance Protocol for Slaughter Examination of White-Tailed Deer and Elk, March 2, 2000 (Attachment 21)
- Michigan Bovine TB Disease Free Zone Surveillance Plan (Attachment 22)
- Bovine Tuberculosis Enforcement Protocols (Attachment 23)

g. What security measures are in place at ports of entry to control importation of materials that might carry disease agents of concern?

The Upper Peninsula of Michigan is separated from the Modified Accredited area of the northern Lower Peninsula by Lake Michigan to the southwest, Lake Huron to the southeast, and the Straits of Mackinac to the south. The Upper and Lower Peninsula are connected by the Mackinac Bridge, which spans a 5-mile water barrier, the smallest distance between the areas. This bridge is a toll crossing, and all vehicles must stop at the northernmost section of the bridge. MDA and USDA personnel began gathering livestock crossing information in April 2003, and conducted educational activities with livestock transporters from April to June 2004. Targeted monitoring and enforcement activities for the tuberculosis program at the Mackinac Bridge crossing began on June 1, 2004. Specific protocols are revised on a monthly basis based upon the results of previous activities and enforcement results.

In April of 2004, MDA staffed 2 persons to conduct detailed surveillance of livestock moving into the Upper Peninsula. This surveillance consists of inspecting loads of livestock that cross the Mackinac Bridge to verify that the livestock are being moved in accordance with animal identification, testing, and permits (if needed). These inspections are being done during times of high livestock traffic movement across the bridge. The Mackinac Bridge Authority has monitored the movement of livestock across the bridge since 2001 to identify these movement times.

During inspections, any identified violations are directed to the AID Compliance Unit for follow-up. Also, education materials in reference to livestock identification, testing and movement requirements are being given out. In times, when MDA staff is not conducting these inspections, the Mackinac Bridge Authority is continuing to monitor who is transporting livestock, along with the number and type of livestock on the load. (Attachment 40)

Violations of tuberculosis requirements are dealt with at the time of movement, or the owner's name, address and information regarding animals are documented by MDA/USDA inspectors and sent to the AID compliance unit for further follow-up. AID compliance personnel work cooperatively with USDA OIE personnel in Michigan on cases involving movement across state or zonal boundaries.

Animal identification is mandated and enforced with MDA or USDA staff recording first time violators and bringing them into compliance once the animals arrive at licensed auction markets. Michigan State Police, Motor Carrier Division have made traffic stops of vehicles transporting livestock throughout Michigan and have not found repeat violations. Since the beginning of 2004, Motor Carrier Enforcement has carried out 15 control point actions.

Enforcement of intrastate movement requirements has been progressive on a graduated, education-based enforcement protocol since January of 2002. This method of enforcement has been successful and has had revealed few repeat violators.

Livestock movement inspection forms are used by law enforcement agencies to report livestock movement to the MDA for enforcement. This, combined with having MDA or USDA staff at Michigan licensed auction markets every week, has enabled MDA to enforce the testing and movement requirements.

Since January 2002, MDA has increased security measures through efforts of surveillance and enforcement of livestock testing and movement within and out of Michigan. These measures include increased activity of screening livestock entering auction markets, proactive investigations of farms never obtaining permits to move livestock, additional law enforcement stops of vehicles transporting livestock, and increased scrutiny of livestock crossing the Mackinac Bridge.

In addition, strict enforcement of regulations has required animals that do not meet tuberculosis testing and official identification requirements to be sold for direct slaughter or directly to registered terminal operations only. In situations where an animal's destination is in question, MDA or USDA personnel investigate to verify that the animal was slaughtered within 5 days. Livestock which enter livestock auction markets throughout Michigan are being checked by MDA or USDA personnel to verify that animals have official identification and/or the animals are properly tested to move. In instances where animals are found to have moved illegally, reports are generated and forwarded to the MDA Compliance Unit. Follow-up of these alleged violations are conducted and penalties administered. Currently, MDA has conducted investigations as follows:

Illegal Movement Investigations: 2002 - 20 investigations
2003 - 55 investigations
2004 – 57 investigations (to date 8/2004)

Testing Investigations: 2002 - 0 (State law allows until 2004 to complete most testing requirements)
2003 - 31 investigations
2004 - 48 investigations

The majority of these investigations have been enforced through a progressive, education-based enforcement protocol that was set into place in January of 2002. With this protocol, to date, MDA has found few repeat violators. Of the repeat violators, MDA has been successful in collecting fines and criminal prosecution. There have been 25 untested farm violations, with 23 investigations resulting in fines and subsequent testing, and 2 remaining under quarantine. In addition, seventy-nine illegal movement investigations have produced 74 warnings, 3 unfounded violations, and 2 fines. All of these were first-time violations.

Along with reactive enforcement through work of MDA and USDA staff, MDA has completed checks on over 175 farms that have never obtained permits to move livestock in areas that need permits. This detail found the majority of these farms move animals either for slaughter or for their own consumption. At premises where violations were verified, information was left and compliance personnel explained the requirements to move livestock in Michigan, and citations were issued.

2. Disease status--i.e. is the restricted disease agent known to exist in the region? If “yes,” at what prevalence? If “no,” when was the most recent diagnosis?

- a. For each relevant hazard, is the pest or disease agent known to exist in the region?**
- b. If yes, at what prevalence?**
- c. If no, when was the most recent diagnosis or detection?**
- d. What breeds or species were affected?**
- e. How many cases were diagnosed and reported?**

The Upper Peninsula is a part of Michigan that has zero percent prevalence of cattle or bison herds affected with bovine tuberculosis, and has no findings of tuberculosis in any cattle or bison herds for the previous five years.

Bovine tuberculosis is not known to exist in the Upper Peninsula of Michigan. The disease has not been diagnosed in the Upper Peninsula since Michigan was initially classified bovine tuberculosis free in cattle on December 1, 1979. All of the 688 cattle herds in the Upper Peninsula have been TB tested since January 1, 2000, and all have been negative. These herds include a total of 9,200 beef cattle and 13,300 dairy cattle. In the time period from January 1, 2000, to June 1, 2004, a total of 52,517 bovine tuberculosis tests have been conducted in 1,224 whole herd tests on farms in the Upper Peninsula, an average of almost two whole herd tests per herd. (Attachment 24)

Bovine tuberculosis has never been diagnosed in cervidae, or any other wildlife species in the Upper Peninsula. Since 1995, eight thousand two hundred and sixty two (8,262) free ranging white-tailed deer have been examined for bovine tuberculosis in the Upper Peninsula, and all have been negative (Attachment 35). In addition, 1,139 privately owned farmed cervids in the Upper Peninsula have TB tested negative on the single cervical test and 321 privately owned cervids on ranching operations have been found to be negative for bovine tuberculosis based upon slaughter surveillance. (Attachment 37)

f. Is reporting the pest or disease agent required in the region?

Mycobacterium bovis is a reportable disease in the state of Michigan. Under Public Act 466 of 1988, as amended, any person who has suspicion or knowledge of a reportable disease must immediately report that fact to the MDA (Attachment 3). All reports of suspicion of disease or suspect tuberculosis test results are immediately assigned for follow-up to state or federal veterinarians trained in the diagnosis and control of tuberculosis, and diagnostic procedures are followed as outlined in the UM&R for Bovine Tuberculosis Eradication.

g. If the pest or disease agent was present and subsequently eradicated, what methods were used for eradication?

Bovine tuberculosis is not known to exist in the Upper Peninsula of Michigan. *M. bovis* was eradicated in Michigan's bovine population prior to 1979. Prior to 1979, the last herd known to be infected with *M. bovis* was a dairy in Lower Michigan in 1974. Michigan was accredited bovine tuberculosis free in cattle on December 1, 1979, and retained that status until August 13, 1998, when the status was suspended. The methods used to eradicate *M. bovis* were the state/federal cooperative program for tuberculosis eradication in effect at that time.

Michigan became Non-Modified Accredited in June 2000 as an entire state. In November 2000, Michigan was assigned Modified Accredited status under new USDA standards.

In the summer of 2001, the MDA, in cooperation with the U.S. Food and Drug Administration and the USDA, submitted a proposal to the 2001 National Conference on Interstate Milk Shipments (NCIMS) to update the terminology in the Grade “A” Pasteurized Milk Ordinance for bovine TB risk classification and to allow alternative bovine TB testing protocols which are risk-based and would most effectively utilize resources to assure milk safety. The NCIMS delegates voted in support of this proposal which went into immediate effect. (Attachment 25)

Michigan received split state status classification with regard to bovine tuberculosis in the spring of 2004. The northern portion of Lower Michigan is now classified as Modified Accredited. This includes the entirety of Alcona, Antrim, Charlevoix, Cheboygan, Crawford, Emmet, Montmorency, Oscoda, Otsego, and Presque Isle counties, and those portions of Iosco and Ogemaw counties that are north of the southernmost boundaries of the Huron National Forest and the Au Sable State Forest. The remainder of the state is now classified as Modified Accredited Advanced (Attachment 26).

h. What geographic and environmental characteristics of the exporting region may influence the prevalence of the pest or disease agent?

The prevalence of *M. bovis* in the wild, white-tail deer population in the five-county area of Alpena, Alcona, Montmorency, Oscoda, and Presque Isle represents a risk for livestock and other species in the area. This reservoir host may be the source of infection for other species and studies have not revealed the presence of any other wildlife reservoir host, although other species have been shown to be infected. (Attachment 27)

Bovine tuberculosis is difficult to prevent or treat in wild deer. There is no effective vaccine for disease prevention and no effective medication for treatment. The goal of the bovine TB eradication effort is to eradicate bovine TB from all species, livestock and wild, in Michigan. The wildlife strategy consists of deer management actions and wildlife disease surveys. Deer management actions (ban on feeding and increased deer harvest) are used to eliminate bovine TB in wildlife while wildlife disease surveys are used to monitor the apparent prevalence of bovine TB and the geographical spread of the disease. Large scale feeding of wildlife, thought to be the main cause of the reservoir in the wild, no longer occurs except for restricted feeding under a permit issued by MDNR in Ontonogan, Keweenaw, Baraga, Alger, Luce, and those portions of Marquette and Chippewa counties north of the T34N-T-44N boundary line in Michigan. Feeding materials, locations, and time frames are limited to eliminate the risk of disease transmission. (Attachment 17)

The Mackinac Straits, which are approximately five miles wide, provide a natural barrier to disease transmission between Lower and Upper Michigan. Free ranging deer and domestic animals do not swim across the straits. The Mackinac Bridge spans the Straits, and livestock being transported from Lower Michigan to Upper Michigan across this bridge are checked by MDA employees to ensure that they are properly TB tested. All cattle originating in the Modified Accredited Zone can only cross the bridge to the Upper Peninsula if they meet the requirements for moving into the Modified Accredited Advanced Zone, and are accompanied by a movement permit. All cattle crossing to the Upper Peninsula from the Modified Accredited Advanced Zone of Lower Michigan must meet the TB testing requirements for moving within the Modified Accredited Advanced Zone. The southwestern portion of the Upper Peninsula borders Wisconsin, which has been TB free since 1996.

3. The status of adjacent regions with respect to the agent.

a. For each relevant hazard, is the pest or disease agent known to exist, or has it existed previously, in any region adjacent to the region proposing the trace?

Bovine tuberculosis existed prior to 1975 in the Modified Accredited Advanced Zone of Lower Michigan. It currently exists in the Modified Accredited Zone of Lower Michigan. The southwestern portion of the Upper Peninsula borders Wisconsin, which has been TB free since 1996.

b. If yes, at what prevalence? If no, when was the most recent diagnosis.

Michigan had a high incidence of bovine tuberculosis skin test reactors in the 1950s, which accounted for about 30 percent of the total found in the nation. Most of these reactors were found to be negative for bovine tuberculosis when specimens were collected and submitted for culture to the USDA, MDA, and MSU tuberculosis research project. Bovine tuberculosis was diagnosed in a captive deer herd in southwest Lower Michigan and extensive testing, slaughter, and treatment with isoniazid was utilized in the 1960s.

Bovine tuberculosis currently exists in the Modified Accredited Zone in free-ranging wildlife in 8 counties, and has been diagnosed in 32 cattle herds and 1 privately owned white tailed deer herd since October 1997. Most cases have had extremely low prevalence of the disease within the herd, and epidemiologic investigation has revealed no evidence of spread to other herds. (Attachment 29)

There have been no cases of livestock infected with bovine tuberculosis in the Modified Accredited Advanced Zone. Two free-ranging white-tailed deer were found to be positive for bovine tuberculosis in the Modified Accredited Advanced Zone in 1999, and one free-ranging white-tailed deer was diagnosed with bovine tuberculosis in the northeastern section of Roscommon County immediately adjacent to the Modified Accredited zone in 2003. Extensive surveillance has revealed no further cases of bovine tuberculosis in any wildlife species in the Modified Accredited Advanced Zone. (Attachment 27)

c. When was the most recent diagnosis?

In the part of Michigan designated as the Modified Accredited Advanced Zone, Michigan's last infected cattle herd was diagnosed in 1974, and the state was classified by USDA APHIS as Bovine Tuberculosis Accredited Free on December 1, 1979. In 1993, an individual cull cow was diagnosed as *M. bovis* infected at slaughter and was traced to a dairy farm in Isabella County. Epidemiologic investigation and follow-up testing of over 8000 cattle showed no other infected animals or spread of bovine tuberculosis. In 1994, a captive elk in Montcalm County was confirmed with *M. bovis*. The entire herd of 26 head was depopulated. Epidemiology and traceback testing as determined necessary by federal tuberculosis epidemiologists and state animal health officials in compliance with the UM&R for Tuberculosis Eradication in Cervidae were accomplished. No further bovine tuberculosis infected animals were found.

Bovine tuberculosis currently exists in the Modified Accredited Zone in free-ranging wildlife in 10 counties, and has been diagnosed in 33 cattle herds (three of these have been infected twice) and 1 privately owned white tailed deer herd since October 1997. The most recent diagnosis of bovine tuberculosis in the Modified Accredited Zone was in a dairy herd in Montmorency County in July 2004. Bovine tuberculosis currently exists in the Modified Accredited Zone in free-ranging white-tailed deer in the counties of Alcona, Alpena, Antrim, Crawford, Emmet, Iosco, Montmorency, Oscoda, Otsego, and Presque Isle. Bovine tuberculosis is not known to exist in livestock (cattle, goats, and bison, and captive cervids) except in Alcona, Alpena, Antrim, Emmet, Montmorency, Oscoda, and Presque Isle Counties (Attachment 27).

There have been no cases of livestock infected with tuberculosis in the Modified Accredited Advanced Zone. Two free-ranging white-tailed deer were found to be positive for bovine tuberculosis in the Modified Accredited Advanced Zone in 1999, and one free-ranging white-tailed deer was diagnosed with bovine tuberculosis in the northeastern section of Roscommon County immediately adjacent to the Modified Accredited zone in 2003. Extensive surveillance has revealed no further cases of bovine tuberculosis in any wildlife species in the Modified Accredited Advanced Zone.

d. Are there any relevant factors about the adjacent regions that should be taken into account (e.g., size, distance from the adjacent border to affected herds or animals)?

The Mackinac Straits, which are approximately five miles wide, provide a natural barrier to disease transmission between Lower and Upper Michigan. Free ranging deer and domestic animals do not swim across the straits. The Mackinac Bridge spans the Straits, and livestock being transported from Lower Michigan to Upper Michigan across this bridge are checked by MDA or USDA employees to ensure that they are properly TB tested. All cattle originating in the Modified Accredited Zone can only legally cross the bridge to the Upper Peninsula if they meet the requirements for moving into the Modified Accredited Advanced Zone, and are accompanied by a movement permit. All cattle crossing to the Upper Peninsula from the Modified Accredited Advanced Zone of Lower Michigan must meet the TB testing requirements for moving within the Modified Accredited Advanced Zone. The southwestern portion of the Upper Peninsula borders Wisconsin, which has been TB free since 1996.

4. The extent of an active disease control program, if any, if the agent is known to exist in the region.

a. What is the extent of an active disease control program, if any, is the pest or disease agent is known to exist in the region, or recently existed in the region?

CATTLE AND GOATS

The *Mycobacterium bovis* organism is not know to be present in the region. Intensive surveillance testing of livestock and wildlife in the region has been completed with no evidence of infection discovered in any species. All cattle and goat herds in the state of Michigan were required to be whole herd tested by December 31, 2003, according to requirements of PA 466 of 1988, as amended.

Section 9(20): All cattle and goat herds located in any area outside a high-risk area or a potential high-risk area in this state shall be whole herd bovine tuberculosis tested between January 1, 2000 and December 31, 2003.

Since this enactment, over 52,517 cattle and goats in 1,224 herd tests in the Upper Peninsula of Michigan have been tested negative for bovine tuberculosis. Whole herd testing has included 46,269 animals in 910 herds. This testing included all cattle and bison in the herd 12 months of age and older, and all goats and privately owned cervids 6 months of age or older, within the herd at the time of testing. No evidence of bovine tuberculosis has been found in the region. (Attachment 24)

The state of Michigan also instituted a plan for surveillance of herds in the areas of Michigan not known to be infected with bovine tuberculosis in October 2002. This surveillance is performed using a biennial, random and representative sampling of 1,765 total herds for whole herd testing in Michigan, including 123 herds in the Upper Peninsula. The sampling protocol is designed to detect bovine tuberculosis in an agricultural district with 95% confidence at a 0.2% prevalence rate. The Upper Peninsula of Michigan is a distinct sampling region (Attachment 22). The first two-year surveillance period will be completed the end of December 2004.

In addition, adult cattle presented for slaughter at USDA APHIS Food Safety and Inspection Service inspected slaughter plants are examined for evidence of bovine tuberculosis. Any granulomatous lesions seen upon post mortem examination are submitted to the USDA National Veterinary Services Laboratory for diagnosis. The majority of cattle that are sold to inspected slaughter plants from the Upper Peninsula of Michigan are transferred through the Equity Cooperative Livestock Sales Association collection point (Menominee County) or the Northern Michigan Livestock Marketing Association (Otsego County). Summaries of this marketing is as follows:

Equity Cooperative Livestock Sales Association. This facility purchases cull cows, cull bulls, and finished steers and heifers for sale, direct transport, and slaughter on a grade and yield basis from the Upper Peninsula of Michigan.

<u>Upper Peninsula Cattle Purchases (approx.)</u>	
2002	1,400 cull cows 500 fattened steers and heifers 100 cull bulls
2003	1,800 cull cows 700 fattened steers and heifers 150 cull bulls
2004 (to date)	1,100 cull cows 300 fattened steers and heifers 85 cull bulls

Cull cows are transported primarily to Green Bay Dressed Beef (Green Bay, WI) and Abbeyland (Abbetsford, WI). Fattened steers and heifers are transported primarily to Green Bay Dressed Beef and Packerland (Green Bay, WI). Cull bulls are slaughtered and inspected at Emmer Foods (WI) and Packerland (WI).

Northern Michigan Livestock Marketing Association. This licensed livestock auction market operates a weekly auction and handles animals primarily for the eastern Upper Peninsula and the northern Lower Peninsula of Michigan.

Upper Peninsula Cattle Purchases (approx.)

Annual purchases	2,000 cull cows
	700 fattened steers and heifers
	150 cull bulls

Cull cows and bulls are purchased for slaughter and transported primarily (80%) to Abbeyland and Green Bay Dressed Beef, and occasionally (20%) to Packerland and Taylor Packing (PA). Fattened steers and heifers are sold primarily (80%) to Packerland and Taylor Packing, and occasionally (20%) to Abbeyland and Green Bay Dressed Beef.

Information for sales of cattle for slaughter from the Upper Peninsula of Michigan through other collection points has not been compiled at this time, as the majority of movement is through the Menominee and Otsego County markets.

From October 31, 2000, until June 1, 2004, P.A. 466 of 1988, as amended, Section 9(22) implemented tuberculosis testing requirements for movement of cattle and goats from farm to farm within Michigan, including the Upper Peninsula:

(22) Subject to subsection (24), cattle and goats originating in an area not designated as a high-risk area moving intrastate shall meet at least 1 of the following until the zone, area, or the entirety of the state from which they originate receives tuberculosis-free status from the United States department of agriculture or under other circumstances as approved by the director:

(a) Originate directly from a herd that has received an official negative whole herd bovine tuberculosis test within the 24 months before the intrastate movement.

(b) Has received an individual official negative bovine tuberculosis test within 60 days before the intrastate movements.

(c) Has originated directly from an accredited bovine tuberculosis-free herd as defined in title 9 of the code of federal regulations and the bovine tuberculosis eradication: uniform methods and rules, effective January 22, 1999, approved by veterinary services of the United States department of agriculture, and all amendments to those publications thereafter adopted pursuant to rules that the director may promulgate.

Michigan received official bovine tuberculosis split state status from USDA on April 19, 2004, which included the advancement of the Upper Peninsula from Modified Accredited to Modified Accredited Advanced status. In recognition of the absence of bovine tuberculosis being discovered in any wild or domestic species in this region, the tuberculosis testing requirements for movement of cattle within the Modified Accredited Advanced zone were modified through the authority granted the Director of MDA through *Establishment of Zones for Bovine Tuberculosis; Identification, Testing, Permitting, and Movement Requirements (Effective June 1, 2004)*. (Attachment 11)

PRIVATELY OWNED CERVIDAE

Michigan mandated tuberculosis surveillance testing of all privately owned cervid herds in the state January 1, 1999 (Attachment 20, 21). Since that time, over 33,863 single cervical tests and 3,602 slaughter surveillance tests have been completed with no evidence of bovine tuberculosis discovered in the state, outside one privately owned white-tailed deer herd located within the Modified Accredited Zone in December 1997 (Attachment 30). Epidemiologic investigation of this occurrence revealed that the herd became infected through enclosure of tuberculosis infected free-ranging animals when the herd was first formed in 1991. No live animals had left the herd since its inception, and all epidemiologic testing and investigation revealed no evidence of spread from the herd. Michigan has applied for Bovine Tuberculosis Accredited Free Status for Cervidae under the National Tuberculosis Eradication Program.

b. What epidemiologic investigations are done to trace the source of infection?

Epidemiologic investigations are initiated when animals with the presence of lesions grossly or histologically compatible with tuberculosis are found, or when positive culture results are received confirming the presence of *Mycobacterium bovis* in a livestock species. If *M. bovis* is confirmed in any cattle, goats, or privately owned cervidae, epidemiologic investigations are conducted according to the UM&R for Bovine Tuberculosis.

These investigations include:

- obtaining producer records on all movements,
- reviewing state and federal tuberculosis testing and movement permits and certificates,
- records on partnerships or other farm locations,
- investigations of records at saleyards or with livestock dealers,
- area surveys, and
- all other information deemed appropriate by epidemiologists.

All herds within Michigan which have sold or received animals from the affected herd, contact herds, or those herds considered at risk for contracting or contributing tuberculosis are scheduled for tuberculosis testing by state or federal veterinarians. Public Act 466 of 1988, as amended, provides authority for the Director to examine or collect diagnostic specimens from any animal suspected to be affected by a reportable disease.

All states and countries with herds which have sold to or purchased animals from the affected herd, or have had other contact with animals in the affected herd are contacted by MDA and USDA regarding such movements or contacts. Information regarding animals exposed through congregation points such as auction sale yards or exhibitions are obtained from the sale yard or exhibition authority.

Tuberculosis testing of all exposed, source and other contact herds is conducted until USDA epidemiologists determine that further epidemiologic investigation is not needed.

High Risk and Potential High Risk Areas are defined terms in P.A 466, as amended, Section 11(a) and (c) respectively. A High Risk Area is an area designated by the Director where bovine tuberculosis has been diagnosed in livestock while a Potential High Risk Area is an area designated by the Director where the disease has been diagnosed in wild animals only. Both designations serve to invoke the Director's authority to test livestock herds for area surveillance. These designations may be used to implement immediate mandatory testing and surveillance requirements for epidemiologic reasons, if necessary.

c. Are infected or exposed animals or premises quarantined? If so, for how long?

The director has authority to quarantine animals or premises under P.A. 466 of 1988, as amended, section 12. (Attachment 3)

Any herds that harbor animals suspected of being infected with bovine tuberculosis are immediately placed under a movement restriction quarantine until the tuberculosis status of the herd can be established. When a test suspect animal is reported by a private veterinarian upon Caudal Fold testing, the herd is quarantined by state or federal animal health officials.

All infected and exposed animals within a herd which is confirmed to be affected with bovine tuberculosis remain under quarantine until the entire herd is depopulated and all requirements of the appropriate UM&R are followed. Contact herds may also be quarantined and depopulated.

If depopulation is not possible, affected herds remain under quarantine until all reactor animals have been removed, and the herd undergoes tuberculosis testing and any other requirements as outlined in UM&R for Bovine Tuberculosis Eradication. All testing in affected herds is conducted by state or federal veterinarians.

Herds which contain exposed animals previously sold from an affected herd are quarantined, and the exposed animal(s) depopulated and submitted for laboratory testing. The herd may be released from quarantine if the exposed animal(s) is found negative for tuberculosis and the herd receives a complete negative tuberculosis test. If the exposed animal is not depopulated, this animal and the rest of the herd are handled as outlined in the UM&R for Bovine Tuberculosis Eradication.

d. Are affected premises monitored, and if so, how?

No premises have been found to have the presence of bovine tuberculosis in the region. Any premises under state quarantine is monitored by state and federal animal health officials assigned to the premises, and appropriate reports are written concerning the visit. The visits are to monitor and assure compliance with the quarantine, monitor animal identification, and enforce biosecurity measures.

e. What tests are performed prior to releasing of the quarantine?

Tuberculosis testing is performed by state or federal personnel at an interval as outlined in the UM&R for Bovine Tuberculosis Eradication, or as otherwise deemed necessary by the Department in conjunction with the Area and Regional Tuberculosis Epidemiologist.

f. What procedures are used to clean up affected premises?

No herds have been found to have the presence of bovine tuberculosis in the region. In the adjacent region, if a herd is depopulated, the owner cleans the premises under the direction of appropriate state and federal animal health officials. After the cleaning has been accomplished and approved by the appropriate animal health officials, the inanimate objects and surfaces which were exposed to the animals in the depopulated herd are disinfected by state or federal animal health officials. A high-pressure power sprayer is used which contains a disinfectant approved by USDA to disinfect facilities previously exposed to *M. bovis*. Any facilities, or portions of facilities, which cannot be disinfected remain vacant for a period of not less than one year prior to repopulation.

Reactor animals that are shipped to MSU, DCPAH by truckers contracted by MDA, or by the owner of the cattle, are escorted to the facility by state or federal animal health officials, or are sent on an officially sealed truck or trailer. All vehicles used for such transport are disinfected by state or federal animal health officials using a high-pressure power sprayer and approved disinfectant.

No herds have been found to have the presence of bovine tuberculosis in the region. There have been five dairy herds not depopulated as affected herds in the Modified Accredited Zone. All five of these dairies were or are being tested frequently according to a herd plan consistent with UM&R for Bovine Tuberculosis Eradication prior to being released from quarantine. A sixth dairy herd recently diagnosed as being infected with bovine tuberculosis is having a herd plan developed which includes extensive requirements to eliminate the risk of re-infection from any direct or indirect wildlife sources. This sixth dairy herd infection is a second diagnosis of bovine tuberculosis in a previously infected herd.

g. What treatment regimes are followed?

No treatments are used in control of *Mycobacterium bovis*.

h. What breeding practices are followed?

Specific breeding practices are not mandated in herds which are being tested or under investigation for bovine tuberculosis, unless determined to be part of specific management practices necessary to eliminate or prevent recurrence of bovine tuberculosis in an infected herd undergoing an official test-and-removal program.

Educational programs are being developed on methods and practices that can be used to reduce or eliminate the risk of bovine tuberculosis from wildlife species. A program to certify herd practices to be used for bovine tuberculosis accredited free herds in the Modified Accredited zone is being finalized.

i. If depopulation is used, how are the carcasses disposed of (are they salvaged at abattoirs)?

All animals ordered depopulated for the presence of *Mycobacterium bovis* are disposed of in one of the following ways (Attachment 5, 6):

- 1) submission to an approved diagnostic laboratory for tuberculosis testing and subsequent incineration,
- 2) transport and disposal at a landfill approved by the Michigan Department of Environmental Quality (DEQ) to handle dead animals,
- 3) burial on site in a manner which will not allow exposure to other animals or contamination of facilities,
- 4) burial at an offsite location which will not allow exposure to other animals or contamination of facilities,
- 5) rendering at an approved facility,
- 6) slaughter at a USDA/FSIS inspected facility.

j. Is indemnity paid on destroyed animals? Yes

Effective February 14, 2002, USDA became responsible for paying fair market value for all livestock that are suspect, exposed, infected, or reactor-classified for bovine tuberculosis. Any livestock that are given a classification under the tuberculosis eradication program may make a claim for indemnity at 100 percent of the appraised fair market value, not to exceed \$3,000 (less any salvage value).

Prior to February and concurrent with these changes, under Public Act 466 of 1988, as amended, the Director of the MDA allowed indemnification for animals ordered destroyed for the control or eradication of a disease or condition of livestock. Indemnification is based upon 100 percent of the fair market value of that type of livestock or domestic animal on the date of the appraisal and marketable for the purpose for which the livestock or domestic animal was intended, not to exceed \$4,000 for each animal. Any indemnity is only approved if the appraised animal value exceeded the amount of indemnity provided by USDA.

k. Have premises, thought to have been cleaned up, later been found to still be infected?

No premises have been found to have the presence of bovine tuberculosis in the region.

- 5. The vaccination status of the region. When was the last vaccination? What is the extent of vaccination if it is currently used, and what vaccine is being used?**
- a. Is the ownership and use of vaccine allowed?**
 - b. When was the last vaccination?**
 - c. What is the extent of vaccination if it is currently used?**
 - d. What types of vaccine (live, modified live, killed) are used?**
 - e. Who may vaccinate (herd owners, veterinarians, etc.)?**
 - f. Are records kept in the use of vaccine?**
 - g. Who produces the vaccine?**
 - h. Is the administration of serum permitted? If so, by whom and under what conditions?**

An approved bovine tuberculosis vaccine for use in animals is not currently available or licensed by USDA, APHIS. Under Public Act of 466 of 1988, as amended, the director of the MDA may:

". . . pursue restrictions of the distribution and use of veterinary biologics when the director determines that such restrictions are necessary for the protection of domestic animals or the public health, interest, or safety. . . "

[MCL 287.743 Sec. 43 (3)] (Attachment 3). This authority may be implemented to regulate vaccine usage if such a vaccine is developed.

6. The degree to which the region is separated from adjacent regions of higher risk through physical or other barriers.

a. To what degree is the region separated from regions of higher risk through physical or other barriers?

The region described as the Bovine Tuberculosis Free zone is separated from an adjacent region of higher risk, which is the Bovine Tuberculosis Modified Accredited Zone, by two great Lakes (Lake Michigan and Lake Huron) and the Straits of Mackinac. This barrier has a minimum 5 mile distance of deep channel shipping lanes, and can only be crossed by plane, boat, or by vehicle at the Mackinac Bridge. The Mackinac Bridge is the only vehicle crossing point accessible between the Modified Accredited zone and the Upper Peninsula, and is monitored by a 24 hour manned toll facility located at the northern end of the bridge. The Mackinac Bridge Authority has police authority over the bridge, and maintains a 24-hour enforcement staff in addition to toll activities.

The Modified Accredited Advanced Zone of Lower Michigan is located south of the Modified Accredited Zone.

7. The extent to which movement of animals and animal products is controlled from regions of higher risk, and the level of biosecurity regarding such movements.

a. From what countries or regions does the requesting region import products that could potentially carry pest or disease agents of concern?

The region may import cattle from the Modified Accredited zone of Michigan, and may rarely have cattle imported from other Modified Accredited Advanced areas of the United States known to have the presence of bovine tuberculosis.

b. To what extent is the movement of such products controlled from regions of higher risk, and what is the level of biosecurity regarding such movements

Since October 31, 2000, all cattle within Michigan have been required to comply with the following testing prior to movement between farms in the state:

(22) Subject to subsection (24), cattle and goats originating in an area not designated as a high-risk area moving intrastate shall meet at least 1 of the following until the zone, area, or the entirety of the state from which they originate receives tuberculosis-free status from the United States department of agriculture or under other circumstances as approved by the director:

(a) Originate directly from a herd that has received an official negative whole herd bovine tuberculosis test within the 24 months before the intrastate movement.

(b) Has received an individual official negative bovine tuberculosis test within 60 days before the intrastate movements.

(c) Has originated directly from an accredited bovine tuberculosis-free herd as defined in title 9 of the code of federal regulations and the bovine tuberculosis eradication: uniform methods and rules, effective January 22, 1999, approved by veterinary services of the United States department of agriculture, and all amendments to those publications thereafter adopted pursuant to rules that the director may promulgate.

The Director of MDA implemented the following zoning order March 1, 2002, effective until June 1, 2004, that expanded movement testing requirements from the adjacent area of Michigan which has a higher risk of bovine tuberculosis (Attachment 31):

Infected Zone - includes Alcona, Alpena, Montmorency, and Presque Isle Counties.

Animal Identification

- Official identification is required on all domestic livestock that move from any premises. The use of electronic identification will be strongly encouraged.

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Surveillance Herd Testing Requirements

- Annual whole herd testing is required of all herds for surveillance, except that surveillance testing is not required for terminal operations (Attachment 24).

Movement Testing Requirements

- The herd must have met the annual testing requirement for surveillance testing.
- An individual animal test with negative results is required within 60 days prior to movement for breeding livestock and sexually intact feeders, if movement occurs after 6 months from the date of the annual whole herd test.
- No additional testing is required of individual animals moved directly to slaughter, to a terminal operation (Attachment 32), or if originating from an accredited herd.

Movement Permit Requirements

- A movement permit is required to move livestock from any premises within the Infected Zone, unless moving directly to slaughter.

Surveillance Zone - includes Cheboygan, Crawford, Iosco, Ogemaw, Oscoda, and Otsego Counties.

Animal Identification

- Official identification is required on all domestic livestock that move from any premises.

Surveillance Herd Testing Requirements

- Biennial whole herd testing is required of all herds for surveillance, except that surveillance testing is not required at terminal operations (Attachment 32).

Movement Testing Requirements

- The herd must have met the biennial testing requirement for surveillance testing.
- An individual animal test with negative results is required within 60 days prior to movement for breeding livestock and sexually intact feeders, if movement occurs after 6 months from the date of the biennial whole herd test.
- No additional testing is required of individual animals moved directly to slaughter, to a terminal operation (Attachment 32), or if originating from an accredited herd.

Movement Permit Requirements

- A movement permit is required to move livestock from any premises within the Surveillance Zone, unless moving directly to slaughter.

Disease Free – includes all counties outside the Infected and Surveillance Zones.

Animal Identification

- Official identification is required on any domestic livestock that move from any premises.

Surveillance Herd Testing Requirements

All herds located in Antrim, Arenac, Charlevoix, Emmet* Gladwin, Kalkaska, and Roscommon counties are required to have completed two whole herd tests performed before the December 31, 2003, statewide deadline for whole herd testing.

On July 22, 2002, Emmet County was declared a High Risk Area and was required to test annually for at least three years.

- Those herds having completed a whole herd test once must be tested a second time upon or near the herd test anniversary date in 2002.
- Those herds never having been whole herd tested must be tested within the year 2002 with a second test to follow on the 2003 anniversary date.
- Those herds having completed two whole herd tests within the three-year period of January 1, 2000, through December 31, 2002, are exempt from further surveillance testing under this provision.

In response to bovine tuberculosis surveillance activities, and in conjunction with the granting of official Bovine Tuberculosis Split State Status April 19, 2004, the following surveillance and movement testing requirements were implemented June 1, 2004, under the authority of the Director of MDA (Attachment 11, 13):

Modified Accredited Zone (Infected Zone) - includes the entirety of Alcona, Alpena, Antrim, Charlevoix, Cheboygan, Crawford, Emmet, Montmorency, Oscoda, Otsego, and Presque Isle counties, and those portions of Iosco and Ogemaw counties that are north of the southernmost boundaries of the Huron National Forest and the Au Sable State Forest.

Animal Identification

All cattle must be identified with RFID Electronic identification eartags prior to movement from a premises within the Modified Accredited Zone. Initial identification of cattle must utilize an RFID Electronic identification eartag issued by the Michigan Department of Agriculture to the premises at which the identification occurs.

Surveillance Testing Requirements

All cattle herds must complete an annual whole herd bovine tuberculosis test of all cattle 12 months of age and older, and all goats, bison, or privately owned cervids 6 months of age or older in contact with the herd. Retesting of herds must be done within 9-15 months of the anniversary date of the initial whole herd test. Registered terminal operations, or feedlots in which all animals are sold for direct slaughter or through a concentration point for slaughter, are exempt from the annual whole herd testing requirement.

Movement Testing Requirements

Movement within the Modified Accredited Zone

Cattle must comply with one of the following prior to movement:

- a) Originate directly from a bovine tuberculosis accredited free herd, or,
- b) Originate from a herd which has received a whole herd test within 60 days prior to movement, or,
- c) Receive a negative bovine tuberculosis test within 60 days prior to movement.

Calves less than 2 months of age may be moved if they originate from a herd that has completed a whole herd test within 12 months prior to movement.

Steers or spayed heifers may be moved to a registered terminal operation, or between registered terminal operations without meeting tuberculosis testing requirements.

Cattle may be moved to slaughter, or through a concentration point to slaughter, without meeting tuberculosis testing requirements.

Movement into the Modified Accredited Advanced Zone

Cattle 2 months of age and older must comply with one of the following prior to movement:

- a) Originate directly from a bovine tuberculosis accredited free herd, or,
- b) Originate from a herd that has received a whole herd bovine tuberculosis test within 12 months prior to movement, and receive a negative bovine tuberculosis test within 60 days prior to movement (steers or spayed heifers do not need to meet the whole herd testing requirement).

Calves less than 2 months of age may be moved if they originate from a herd that has completed a whole herd test within 12 months prior to movement.

Cattle may be moved to slaughter, or through a concentration point to slaughter, without meeting tuberculosis testing requirements.

Movement Permit Requirements

A Movement Permit is required to be obtained prior to movement of any cattle from a premises within the zone. All cattle with a destination of a concentration point must receive a new permit that identifies the final destination of movement, prior to leaving the concentration point facility. Cattle do not need to be re-permitted from the concentration point if they are moved directly to a slaughter facility that maintains a RFID Electronic eartag tracking system.

Modified Accredited Advanced Zone (Disease Free Zone) – includes the remainder of Michigan, including the Upper Peninsula.

Animal Identification

All cattle must be identified with official identification prior to leaving a premises within the Modified Accredited Advanced Zone.

Surveillance Testing Requirements

All herds must obtain a premises identification number, and be placed into a database from which herds will be randomly selected for whole herd testing.

Proportional samples of beef and dairy farms will be selected from each Michigan Agricultural Statistics Service agriculture district based upon the total number of farms in that district. Selection will occur on a two-year cycle.

Selected herds, or herds selected as a replacement for herds determined ineligible for testing, shall be subject to whole herd testing of all cattle in the herd 18 months of age and older, and all bison, goats, and privately owned cervids 6 months of age or older in contact with the herd. This testing must occur within 90 days after the person responsible for herd management receives notification that a whole herd test under this surveillance program is due and necessary.

Movement Testing Requirements

Movement into the Modified Accredited Zone

Sexually intact cattle 18 months of age or older must meet one of the following prior to movement:

- a) Originate directly from a bovine tuberculosis accredited free herd, or,
- b) Be included in a whole herd bovine tuberculosis test at the premises of origin within 6 months prior to movement, or,
- c) Receive a negative bovine tuberculosis test within 60 days prior to movement.

Cattle less than 18 months of age, steers and spayed heifers, or cattle moving to slaughter do not need to meet tuberculosis testing requirements prior to movement.

Movement within the Modified Accredited Advanced Zone

No tuberculosis testing is required for movement of cattle within the zone, or through a livestock concentration point to a final destination within the zone.

The Upper Peninsula of Michigan is separated from the Modified Accredited area of the northern Lower Peninsula by Lake Michigan to the southwest, Lake Huron to the southeast, and the Straits of Mackinac to the south. The Upper and Lower Peninsula are connected by the Mackinac Bridge, which spans a 5-mile water barrier, the smallest distance between the areas. This bridge is a toll crossing, and all vehicles must stop at the northernmost section of the bridge. Mackinac Bridge Authority personnel began gathering livestock crossing information in April 2001, and MDA personnel conducted educational activities with livestock transporters from April 1 to June 1, 2004. Targeted monitoring and enforcement activities for the tuberculosis program at the Mackinac Bridge crossing began on June 1, 2004.

The Mackinac Bridge Authority has monitored the movement of livestock across the bridge since 2001 to identify peak movement times. In April of 2004, MDA staffed 2 persons to conduct detailed surveillance of livestock moving into the Upper Peninsula. This surveillance is being done by inspecting loads of livestock that cross the Mackinac Bridge to verify that the livestock are being moved in accordance with animal identification, testing, and permits (if needed). These inspections are being done during times of high livestock traffic movement across the bridge. During inspections, any identified violations are directed to the AID Compliance Unit for follow-up. Also, education materials in reference to livestock identification, testing and movement requirements are being given out. During times when MDA staff are not conducting these inspections, the Mackinac Bridge Authority continues to monitor transportation of livestock across the bridge including the number and type of livestock transported.

c. What test procedures are used?

The caudal fold test is the first screening test, followed with comparative cervical or gamma interferon supplemental diagnostic testing for all responders. The gamma interferon test was approved as an official supplemental diagnostic test in Michigan on December 8, 2003, and is routinely being used in the Modified Accredited Zone of Michigan, and sporadically in the Modified Accredited Advanced Zone (Attachment 33). Suspect and reactor animals on supplemental diagnostic testing are moved to the DCPAH for further diagnosis. Official test procedures for bovine tuberculosis are conducted as stated in the appropriate UM&R and other federal regulations. Caudal fold bovine tuberculosis tests for cattle and goats are conducted by licensed accredited veterinarians and by MDA and USDA regulatory veterinarians.

Follow up comparative cervical or gamma interferon bovine tuberculosis tests on "suspect" animals are conducted in accordance with the appropriate UM&R by MDA or USDA regulatory veterinarians.

d. Are animals quarantined that may carry the disease agent? If so, for how long and where?

Any animals, herd, or geographical area within this state, or within a quarantined area of this state, where bovine tuberculosis suspect or reactor animals are held would be kept under separate quarantines at that premises until the herd completes diagnostic and tuberculosis eradication procedures according to the appropriate UM&R. At that time the quarantine would be released.

e. Are import permits and health certification required?

A permit for movement is required for all animals leaving any premises in the Modified Accredited Zone of Michigan. This system of issuing movement permits automatically determines whether the individual animals to be moved are in compliance with tuberculosis testing requirements, and will not allow issuance of a permit if a discrepancy exists. This system also consists of an inventory and movement tracking database that allows instantaneous access to herd inventory and movement information that can be used for epidemiologic and compliance activities.

MDA has entered into a grant agreement with the National Holstein Association to utilize its Farm Animal Identification and Records (FAIR) system for tracking animal movement, maintaining herd inventory, and for official identification of livestock. This aggressive and innovative program includes producer access to a web-based herd inventory and movement permitting system (Attachment 34).

Testing veterinarians use handheld scanner/computer equipment to supply timely, accurate, and efficient data updates to the USDA, APHIS, VS Generic DataBase (GDB), MDA's Animal Industry Support System (AISS), and the National Holstein Association FAIR database as herds are tested in the field. This ensures that animals may be traced for epidemiologic reasons and can be used to identify marketing patterns that may contribute to disease spread. Any other tuberculosis testing is manually entered into the FAIR database and routinely downloaded to the USDA GDB and MDA AISS.

In August 2001, MDA initiated an electronic identification program for use in cattle. This identification program consists of an electronic eartag system that is coordinated with the FAIR, AISS, and GDB databases, and automatically tracks movement of animals from farms within the Modified Accredited Zone (Attachment 38). Electronic identification is mandated for use as the official identification for all cattle within the Modified Accredited zone, and is required to be used for all movement, testing, and permitting procedures. The identification tags are issued to individual premises, and the identification numbers issued are assigned to the herd in the FAIR and AISS databases. Electronic readers have been installed in licensed

Michigan livestock auction markets, and in 15 slaughter facilities around the United States that handle approximately 95% of all Michigan cattle. Through July 1, 2004, over 84,000 identification tags have been issued on over 1,500 farms. Over 42,000 identification tags have been read, identified, and tracked through livestock auction markets, slaughter plants, and recorded on movement permits.

Usage of this identification system is in the process of being offered to producers in the Upper Peninsula on a 50/50 cost share basis between MDA and the producer. This will allow producers to obtain the electronic identification tags at approximately \$1.00 per tag, which is the cost reported as associated with routine identification used on farming operations.

Prior entry importation permits for cattle and goats coming into this state from other states are not required by the Animal Industry Act. An official interstate health certificate or official interstate certificate of veterinary inspection is required by the Animal Industry Act for all cattle, goats, and captive cervidae entering this state from another state.

f. What other procedures are used?

All procedures as required by 9 CFR and as outlined in the UM&R, state law, and zoning orders.

8. Livestock demographics and marketing practices in the region.

a. How many herds, flocks, etc. of each relevant species are in the region?

The estimated livestock numbers in Michigan and in the Upper Peninsula are contained below. The size of the livestock population in the Upper Peninsula is relatively small compared to that of the state as a whole.

Livestock Species	Michigan Total	Upper Peninsula Total	Percent in Upper Peninsula
Cattle and calves	990,000	48,000	5 %
Milk cows	301,000	13,300	4 %
Beef cows	89,000	9,200	10 %
Sheep and lambs	75,000	2,700	3.6 %
Hogs and pigs	860,000	1,500	0.002 %
Elk	4,338	450	10.4%
White-tailed deer	31,296	1948	6.2%
Other captive cervidae (est)	2,234	115	5.1%

Table 1. Source: Cattle, sheep and swine - Michigan Agricultural Statistics 2002-03. MDA captive cervidae database 8/04.

b. How are they distributed (e.g. herd density, etc.)

In general, the livestock herds are widely dispersed throughout the Upper Peninsula, however, the majority are located in the eastern, western and southern regions. Very few livestock are located in the heavily wooded central counties of Iron, Baraga, Alger, Marquette, and Luce. The majority of dairy cattle are located in Delta, Menominee, and Chippewa counties. Beef cattle are widely distributed, with the heaviest concentrations being in Ontonagon, Chippewa, Delta, and Menominee counties. Most beef farms are cow-calf operations. The privately owned cervidae facilities are quite evenly located throughout the Upper Peninsula.

c. What are the major marketing centers?

There are no livestock markets in the Upper Peninsula. There is one cattle collection facility in Menominee County. This facility is operated by Equity Livestock of Wisconsin. All cattle entering this facility are sold only on the basis of grade and yield, thus ensuring that they all go directly to slaughter.

All other markets for cattle are located in Lower Michigan. The primary markets for Upper Peninsula cattle are in Gaylord (Otsego County) and in St. Louis (Griatiot County). In addition, Upper Peninsula feeder calves are sold at a special fall feeder calf sale held in West Branch (Ogemaw County). (Attachment 39)

Beyond these structured marketing channels, there are a certain number of herd dispersals and private livestock sales within the Upper Peninsula. Cattle are occasionally sold to private buyers in other states, in which case they must meet the health regulations for export to those states.

Other livestock (primarily sheep and swine) are sold either by private sale to buyers within the Upper Peninsula, or through the livestock markets in Lower Michigan. Lambs are commonly marketed through a lamb pool in Chippewa County, Michigan or through a pool sponsored by Equity Livestock in Wisconsin.

d. What are the patterns of livestock movement within the region?

Many of the cull dairy and beef cattle move directly to slaughter through a collection facility in Menominee County. The remainder are moved through Lower Michigan markets. Dairy calves are transported primarily to Lower Michigan for sale through the Gaylord market. A few feeder cattle are grown and fattened in the Upper Peninsula, but most feeders are sold through the Lower Michigan markets or through electronic telemarketing. Dairy heifers are usually raised on the farm of origin, as there are no heifer raisers in the Upper Peninsula. A few cattle from the Modified Accredited Zone and from the Modified Accredited Advanced Zone of Lower Michigan are taken to the eastern area of the Upper Peninsula to graze for the summer. They are returned to Lower Michigan in the fall. A small number of feeder cattle originating in Lower Michigan are fed out in the Upper Peninsula. Livestock purchased in Lower Michigan markets, and elsewhere, are often transported across the Upper Peninsula as they travel to destinations in other Mid-western states. The majority of these animals are being shipped to slaughter facilities in Wisconsin.

All animals that originate from the Modified Accredited Zone of Michigan must meet all permitting, identification, surveillance, and testing requirements prior to leaving the farm of origin and entering the Upper Peninsula. (Attachment 11)

e. How are the animals transported and handled during market transactions?

There are two primary practices by which livestock are transported to and from the auction markets and saleyards. These animals may be transported directly from the premises of origin to the auction market or saleyard and then on to their new destination by the owners (seller and buyer) in vehicles owned and operated by the owners. Alternatively, livestock may be transported to and/or from the auction market or saleyard by licensed livestock truckers.

Livestock truckers for hire are required to be licensed with the Michigan Department of Agriculture in accordance with P.A. 284 of 1937, as amended, Licensing Livestock Dealers (Attachment 7) and to keep records in accordance with Regulation No. 138, Records Required of Livestock Dealers (Attachment 8). There are currently 298 licensed livestock dealers and/or truckers in the state. Anyone transporting livestock within Michigan must carry a copy of all required permits and test records to demonstrate the animals are eligible for movement.

Once transported to the auction market or saleyard, the livestock are unloaded at designated unloading docks. It is at this point that backtags are applied. The livestock are then sorted and penned according to the purpose for which they are intended, i.e. calves, feeder cattle, fat cattle, cull cows, bulls, etc. Handling of the livestock while in the confines of the auction market or saleyard is primarily by auction market or saleyard employees. The employees, under the direction of the saleyard manager, move the livestock through the alleys to the pens, from the pens to the sale ring, from the sale ring to pens (sorted to buyers) and finally to the loading docks to be loaded onto appropriate transport vehicles. Some livestock may remain penned at the auction market or saleyard until later in the evening when the trucker arrives. In these instances, the trucker will handle the animals during the load-out (pens to vehicle).

Most auction markets and saleyards have a schedule by which livestock of various intended uses are sold. For example, calves may be sold first and cull cows sold last. Livestock begin arriving early on the day of sale to assure they are present for the appropriate part of the sale. Some livestock may arrive during the night before the sale. In these instances, the consignor has usually made prior arrangements with the saleyard manager. Livestock are continuously arriving and departing throughout the sale day.

Livestock auction markets and saleyards are required to be licensed with the Michigan Department of Agriculture in accordance with Act No. 284 of 1937, as amended, Licensing Livestock Dealers (Attachment 7) and to keep records in accordance with Regulation No. 138, Records Required of Livestock Dealers (Attachment 8). There are regulations associated with this statute (Attachment 9), as well as in P.A. 466 of 1987, as amended, the Animal Industry Act (Attachment 3), pertaining to the cleaning and disinfecting of the premises, and transportation vehicles.

MDA AID has program management responsibility for the licensing and regulation of livestock markets, dealers and truckers. License applications are reviewed by the program manager and processed by the appointed administrative support staff. Files are maintained on each licensee. The files contain license applications, bond documents (where applicable), inspection reports, complaint investigations and/or reports, correspondence, and other relevant documents. Veterinarians and Animal Health Technicians employed by the MDA, AID and USDA, APHIS, VS are present during sales conducted at licensed auction markets within Michigan in their assigned territories. The main focus of the inspection process is to monitor compliance with testing and identification requirements, conduct disease surveillance, and assure compliance with appropriate laws and regulations. Random inspections of livestock dealer records are also conducted.

9. The type and extent of disease surveillance in the region--e.g., is it passive and/or active; what is the quantity and quality of sampling and testing?

a. Are serum surveys conducted, and if so, how frequently, what sample sizes are used, and what has been found?

Serum surveys are not used in the identification or diagnosis of bovine tuberculosis.

Tuberculosis surveillance is conducted through the Michigan Bovine TB Disease Free Zone Surveillance Plan, slaughter surveillance conducted on cull cows and bulls presented for slaughter at federally inspected slaughter plants throughout the United States, testing of animals for movement to other zones, states, or countries, and epidemiologic testing associated with tuberculosis investigations.

The Michigan Bovine TB Disease Free Surveillance Plan is a mandatory random tuberculosis testing program which selects a number of herds each two years from each of Michigan's Modified Accredited Advanced agricultural districts for whole herd tuberculosis testing. The selection is based upon surveillance that would detect a 0.2% prevalence of bovine tuberculosis with 95% confidence at the herd level, and includes dairy, beef, and mixed category herds. A weighted number of herds are selected based upon herd and animal census within the individual districts (the Upper Peninsula is sampled as a distinct agricultural district). The first two year testing period will be completed by January 1, 2005, and includes 128 herds from the Upper Peninsula. (Attachment 22)

Every cattle, goat, and bison herd within Michigan was required to complete a whole herd bovine tuberculosis test between January 1, 2000, and December 31, 2004. This whole herd testing included all cattle, goats, and bison 12 months of age and older present in the herd at the time of testing. Since January 1, 2000, over 52,795 bovine tuberculosis tests have been conducted in the Upper Peninsula. Of this total, nine hundred fifty eight (958) whole herd tests including 46,398 animals were completed. No cases of bovine tuberculosis have been identified in the Upper Peninsula of Michigan.

Mandatory tuberculosis surveillance for privately owned white-tailed deer and elk herds was instituted in January 1999, and expanded to include all privately owned cervid species in 2001. Through July 2004, surveillance of privately owned cervidae in the Upper Peninsula has included 1,139 single cervical and 321 slaughter based tests (Attachment 37). No evidence of bovine tuberculosis has been found in any privately owned cervidae in this region.

USDA FSIS conducts routine examination of all cull cows and bulls that are presented at inspected plants for evidence of bovine tuberculosis. From January 2002 through July 2004, over 1,082,263 Michigan animals have been reported as being examined for bovine tuberculosis at FSIS inspected slaughter plants.

The majority of cattle that are sold to inspected slaughter plants from the Upper Peninsula of Michigan are transferred through the Equity Cooperative Livestock Sales Association collection point (Menominee County) or the Northern Michigan Livestock Marketing Association (Otsego County). Summaries of this marketing is as follows:

Equity Cooperative Livestock Sales Association. This facility purchases cull cows, cull bulls, and finished steers and heifers for sale, direct transport, and slaughter on a grade and yield basis from the Upper Peninsula of Michigan.

Upper Peninsula Cattle Purchases (approx.)

2004	1,400 cull cows 500 fattened steers and heifers 100 cull bulls
2005	1,800 cull cows 700 fattened steers and heifers 150 cull bulls
2004 (to date)	1,100 cull cows 300 fattened steers and heifers 85 cull bulls

Cull cows are transported primarily to Green Bay Dressed Beef (Green Bay, WI) and Abbeyland (Abbetsford, WI). Fattened steers and heifers are transported primarily to Green Bay Dressed Beef and Packerland (Green Bay, WI). Cull bulls are slaughtered and inspected at Emmer Foods (WI) and Packerland (WI).

Northern Michigan Livestock Marketing Association. This licensed livestock auction market operates a weekly auction and handles animals primarily for the eastern Upper Peninsula and the northern Lower Peninsula of Michigan.

Upper Peninsula Cattle Purchases (approx.)

Annual purchases	2,000 cull cows 700 fattened steers and heifers 150 cull bulls
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Cull cows and bulls are purchased for slaughter and transported primarily (80%) to Abbeyland and Green Bay Dressed Beef, and occasionally (20%) to Packerland and Taylor Packing (PA). Fattened steers and heifers are sold primarily (80%) to Packerland and Taylor Packing, and occasionally (20%) to Abbeyland and Green Bay Dressed Beef.

Information for sales of cattle for slaughter from the Upper Peninsula of Michigan through other collection points has not been compiled at this time, as the majority of movement is through the Menominee and Otsego County markets.

Since discovering bovine tuberculosis in free-ranging white tailed deer in northeastern Lower Michigan in 1995, the Michigan Department of Natural Resources has completed annual surveillance for bovine tuberculosis throughout Michigan, including the Upper Peninsula. Through the 2003-2004 hunting season, eight thousand two hundred sixty two (8,262) free-ranging white-tailed deer in the Upper Peninsula have been tested and found negative for bovine tuberculosis (Attachment 35). No evidence of bovine tuberculosis has been seen in the Upper Peninsula of Michigan.

b. Is reporting of sick animals mandatory, and if so, what is the procedure by whom and to whom, and what penalties are involved for failure to report?

M. bovis is a reportable disease in the state of Michigan. Under Public Act 466 of 1988, as amended, any person who has suspicion or knowledge of a reportable disease must immediately report that fact to the MDA. (Attachment 15) All reports of suspicion of disease or suspect tuberculosis test results are immediately assigned for follow-up to state or federal veterinarians trained in the diagnosis and control of tuberculosis, and diagnostic procedures followed as outlined in the appropriate UM&R and other applicable Federal Regulations.

Failure to report suspicion or knowledge of a reportable disease is a misdemeanor violation punishable by a fine of not less than \$300.00 or imprisonment of not less than 30 days, or both. In addition, any person who intentionally misrepresents the health or medical status for an infectious, contagious or toxicological disease to facilitate movement or transfer of ownership is a felony violation punishable by a fine of up to \$50,000.00 and imprisonment of up to 5 years. (Attachment 3)

- c. Are laboratory tests run on suspicious animals? If so, what is the procedure and to what extent e.g., what proportion of suspicious cases are evaluated using each of the specific laboratory procedures.**

All suspicious cases are followed up as deemed necessary by federal animal health officials, in conjunction with state animal health officials. All laboratory testing and follow up is completed in compliance with UM&R for Bovine Tuberculosis Eradication (cattle) or the UM&R for Tuberculosis Eradication in Cervidae (privately owned cervidae), and any subsequent memorandums or agreements approved by the Administrator of APHIS.

- d. Are quarantines imposed on premises with suspicious cases pending final diagnosis?**

All premises that contain animals suspicious for the presence of *M. bovis* are quarantined as determined necessary by federal animal health officials, in conjunction with state animal health officials. All quarantines are instituted in compliance with the UM&R for Bovine Tuberculosis Eradication (cattle) or the UM&R for Tuberculosis Eradication in Cervidae (privately owned cervidae).

- e. What other procedures are followed regarding suspicious cases?**

All procedures are followed as deemed appropriate by federal animal health officials, in conjunction with state animal health officials and MSU epidemiologists, and in compliance with the UM&R for Bovine Tuberculosis Eradication (cattle), the UM&R for Tuberculosis Eradication in Cervidae (privately owned cervidae), and other applicable Federal Regulations, to control the occurrence and spread of *M. bovis*.

10. Diagnostic laboratory capabilities.

a. What diagnostic laboratory capabilities are there?

Michigan State University Diagnostic Center for Population and Animal Health

Animal diagnostic activities in the state of Michigan are handled primarily by the Diagnostic Center for Population and Animal Health [DCPAH]. DCPAH is a state of the art service facility of the College of Veterinary Medicine that is fully accredited by the American Association of Veterinary Laboratory Diagnosticians. It offers expertise in bacteriology/mycology, endocrinology, epidemiology, nutrition, parasitology, pathology (anatomic and histologic), toxicology, virology/serology, and immunodiagnosics. DCPAH services are available to veterinarians, regulatory officials, and animal owners, to assist in diagnosis and for consultation.

DCPAH examines sick or dead animals, animal tissues, blood and waste, feed, and samples from the environment. Its findings are coordinated with the referring veterinarian's clinical observations and animal histories in an effort to seek accurate diagnoses. DCPAH comprises 28 faculty members, over 60 technical, computer services and general support staff, and more than 40 part-time student employees. The facility occupies approximately 152,000 gross square feet.

Michigan Department of Community Health

The Michigan Department of Community Health (MDCH) Laboratory is a clinical laboratory, providing a wide variety of public health testing services. Its TB/Mycology laboratory unit has the primary responsibility for diagnostic testing of human specimens for presence of *Mycobacterium tuberculosis* and other *Mycobacterium* spp. involved in human disease and provides reference services to Michigan's clinical laboratories and county health departments. MDCH's TB/Mycology laboratory unit annually tests approximately 7000 clinical specimens and 1800 referred cultures for presence and identification of *Mycobacterium* spp. Since MDCH tested and confirmed the first diagnosed case of *M.bovis* in Michigan's free ranging white tail deer in 1994, its laboratory has continued to develop and maintain the capability to perform microscopic examination, culture, identification and typing services for detection of *M. bovis*, partnering with MDA and MDNR in a cooperative effort to eradicate *M. bovis* from Michigan's wildlife and domestic animals. Since 1994, MDCH has performed culture testing on more than 3000 animals from 24 different animal species, including approximately 2000 white tail deer and elk, detecting *M.bovis* in more than 500 of the animals tested. Using rapid culture and identification methods, confirmation of *M.bovis* from animal specimens is normally completed within six weeks of the date of receipt of the specimen. Reporting test results is accomplished using a computer generated reporting system with the capability of sending reports electronically to multiple agencies.

MDCH has also provided consulting, testing and training services to MSU's Animal Health Diagnostic Laboratory (now DCPAH), as well as, the National Veterinary Services Laboratory in Ames, Iowa. MDCH has participated in 22 research studies by providing diagnostic testing services to MSU, MDNR, MDA, USDA and NVSL and participates in a multi agency consortium of scientists dedicated to eradication of *M.bovis* from Michigan's domestic and wild animal populations.

b. Are there laboratories approved for agent isolation, identification, and typing (if yes, need names and addresses of each)?

The MDCH Laboratory is USDA approved for *M. bovis* isolation, identification, and typing. The address of this laboratory is The Michigan Department of Community Health, Bureau of Laboratories, Division of Infectious Diseases, Microbiology Section, Mycobacteriology Unit, 3350 North Martin Luther King Boulevard, P.O. Box 30195, Lansing, Michigan 48909.

c. If not, where specifically is such isolation, identification, and typing done?

USDA's NVSL is the laboratory where all livestock samples are sent for isolation, identification, and typing. This service is also available at DCPAH. Samples collected and submitted for surveillance of wildlife species are submitted to the MDCH laboratory.

d. What security measures are in place in laboratories within the region to prevent escape of biological agents?

DCPAH

DCPAH laboratories operate in Biosafety Level 1, Level 2, or level 3. Hazardous waste material, both chemical and infectious, is handled by MSU's Office of Radiation, Chemical and Biological Safety (ORCBS). This unit is responsible for establishing policies and procedures for hazardous waste material according to state and federal laws and regulations. MSU is one of only a few universities licensed as a hazardous waste treatment storage and disposal facility by the Environmental Protection Agency.

DCPAH is in compliance with ORCBS regulations. Infectious waste generated in the bacteriology/mycology, virology/serology, and parasitology sections is collected in containers labeled "Biohazardous Material." The containers are transported by ORCBS for incineration. Discarded tissue waste from the toxicology section is packaged in hazardous waste containers and is also incinerated. Chemical and radioactive waste from all laboratory sections is packaged and stored according to ORCBS guidelines, is picked up, and discarded.

All carcasses from the pathology service are incinerated on site. With respect to laboratory safety, all laboratory sections are inspected annually by ORCBS. Problems seen are reviewed by the internal DCPAH Safety Committee, corrective action taken, and documentation provided to ORCBS.

MDCH

MDCH laboratories are housed in a state of the art Biosafety Level 2 and 3 facility, which is used to test Class 1,2, and 3 bio-hazardous etiologic agents. It is designated by CDC as an "LRN Confirmatory Laboratory" for testing agents of bio-terrorism and is certified by CDC to test "Select Agents". The BSL 3 TB/Mycology testing laboratory is secured by 4 layers of security using card access readers at each layer with a security guard at the first two outer layers.

Visitors are only allowed into the BSL 3 area, if accompanied by laboratory staff with authorized access. Entry and exit of unauthorized visitors is documented.

Etiologic agents designated for disposal are decontaminated by autoclaving and rendered non-viable before being transported from the BSL 3 area. Transport of viable cultures for referral out of the facility, when necessary, is done in accordance with IATA and federal regulations.

e. What kind of training have the diagnostic personnel had regarding the specific disease agents of concern?

DCPAH

Personnel are well qualified to carry out the respective missions, and DCPAH has a highly qualified TB expert on staff from the National Animal Disease Center. All personnel working within DCPAH laboratories are required to undergo training with ORCBS prior to conducting activities within the facility.

MDCH

The Microbiology laboratory section director has over 17 years of experience in directing clinical microbiology laboratories.

The TB/Mycology laboratory unit, with over 20 years of experience at testing animals for presence of *M bovis*, is staffed by six microbiologists and four paraprofessionals. Three microbiologists with primary responsibility for *M.bovis* testing with over 35 years of combined microbiology experience and are supervised by a microbiologist with over 30 years of experience.

The MDCH laboratories are accredited by CLIA (CMS) every two years. Laboratory testing performance is evaluated through bi-annually participation in both CDC and CAP mycobacterial proficiency testing programs. Staff competencies are evaluated annually.

11. Policies and infrastructure for animal disease control in the region--i.e., emergency response capacity.

a. What policies and infrastructure exist for emergency response to outbreak situations?

The infrastructure for control of bovine tuberculosis is provided by parts 50 and 77 of the 9 CFR and UM&R for eradication of bovine tuberculosis. State statute, specifically Public Act No. 466, as amended, the Animal Industry Act, (Attachment 3) provides the statutory authority to implement animal disease control in the region.

The Animal Industry Division of the Michigan Department of Agriculture has an Emergency Response Plan (Attachment 36) for all diseases of livestock concern. This generic plan has been exercised and is part of the overall Michigan Emergency Response Plan. MDA AID contains one program manager level veterinary position dedicated exclusively to emergency preparation, response and planning, training, and exercises.