

**LESSONS LEARNED DURING RECENT HIGHLY
PATHOGENIC OUTBREAK & EMERGENCY
PREPAREDNESS FOR AVIAN INFLUENZA
OUTBREAK**

Virginia Emergency Management Conference

Newport News, VA

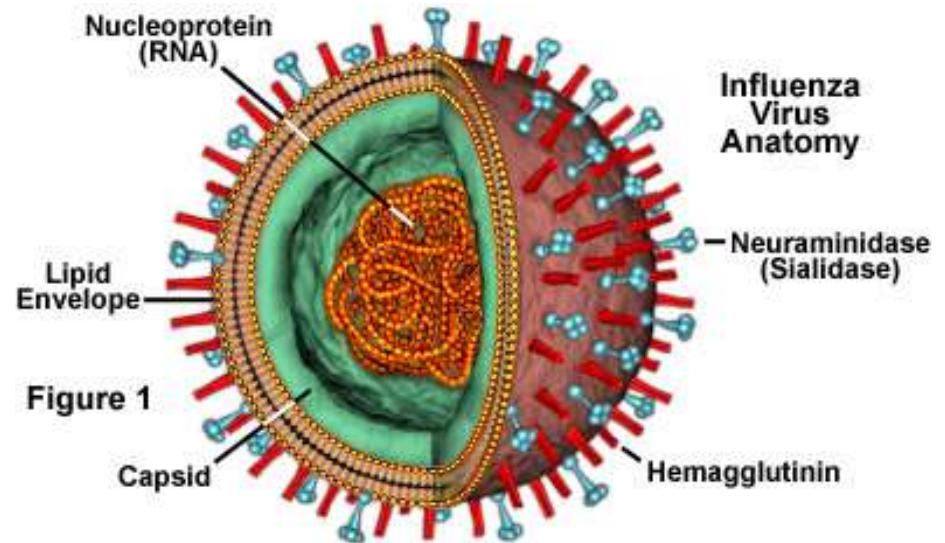
March 30, 2016

Panelists

- Karen Gruszynski, DVM MPH PHD DACVPM
Veterinary Epidemiologist
Virginia Department of Health
- Dr. Donald Hopson, DVM
Regional State Veterinary Supervisor
VDACS, Office of Veterinary Services
- Daryl M. See
Corporate Divisional Safety Manager
Perdue Farms, Inc.

Influenza

- Three types of influenza viruses: A, B, and C
- Influenza A viruses can infect many species
 - Humans
 - Birds
 - Pigs



Influenza Subtypes in Birds

- H5
 - ▣ Occasional human illness, but severe disease
 - ▣ H5N1 detected in 16 countries
- H7
 - ▣ H7N9 is currently circulating in China
 - ▣ Cause variable disease in poultry

Clinical Signs of Avian Influenza in Birds

- ▣ Low Pathogenic (less severe disease)
 - ▣ No clinical signs
 - ▣ Ruffled feathers
 - ▣ Decrease in egg production
- ▣ Highly Pathogenic (more severe disease)
 - ▣ Depression
 - ▣ Diarrhea
 - ▣ Coughing, nasal discharge
 - ▣ Swelling and hemorrhage of comb/wattles
 - ▣ Sudden death

Sick Birds



Historic Outbreaks (High Path)

- 1924: H7 outbreak was contained and eradicated in East Coast live bird markets
- 1983-1984: H5N2 outbreak resulted in humanely euthanizing approximately 17 million chickens, turkeys and guinea fowl in Pennsylvania and Virginia to contain and eradicate the disease
- 2004: USDA confirmed H5N2 outbreak in chickens in Texas

Normal Operations

- Historically, avian influenza has been eliminated from commercial poultry in US and Canada
- Federal and state officials conduct routine surveillance for AI in commercial poultry, live-bird markets and backyard flocks
- Samples from birds are collected and preliminary testing occurs regularly at authorized laboratories
 - ▣ Including VDACS Regional Animal Labs
 - ▣ Any non-negatives on testing are sent to the USDA's National Veterinary Services Laboratories (NVSL) for confirmation

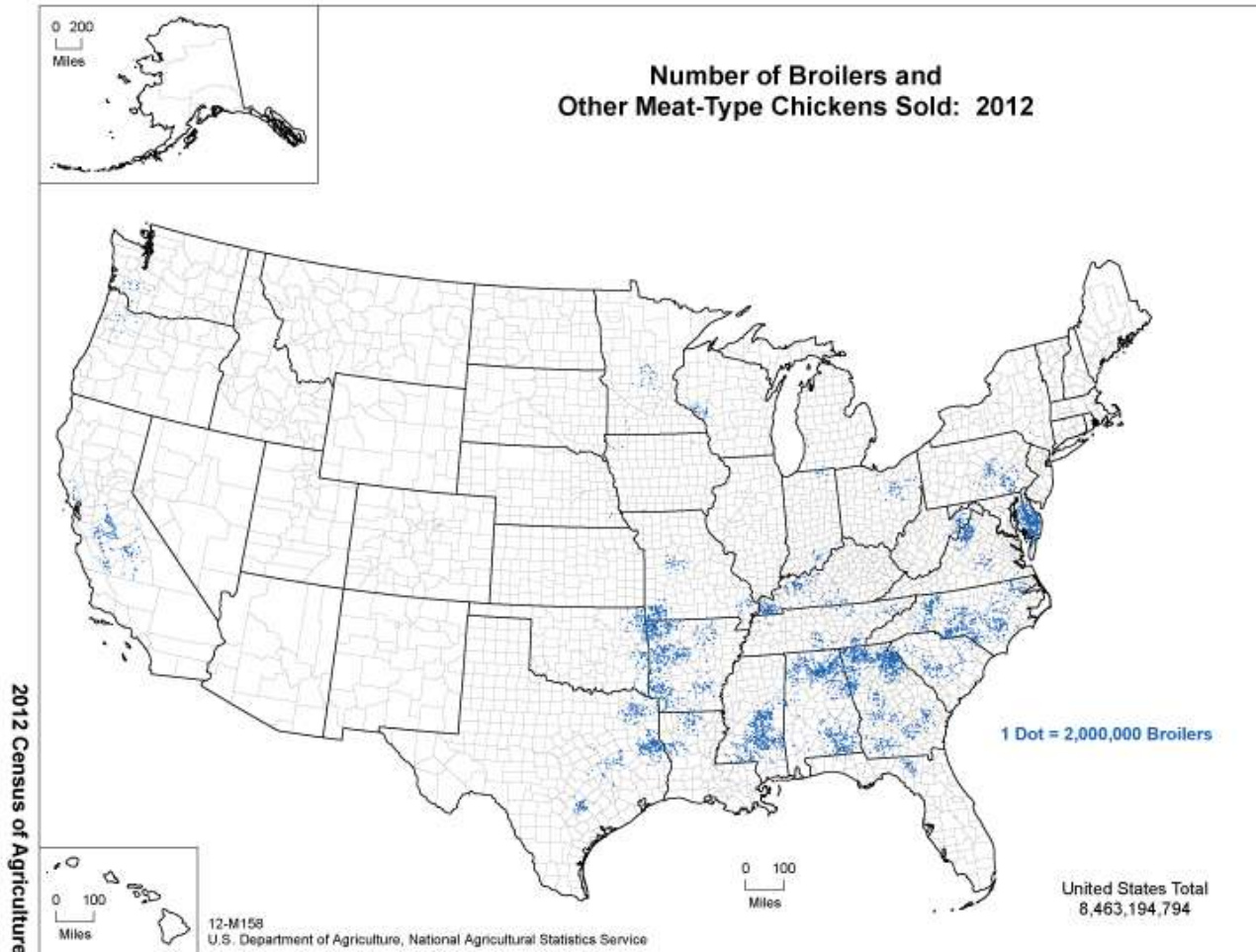
Reporting and Controlling AI

- Avian influenza is reportable diseases in VA
 - ▣ State Veterinarian's office at VDACS
- All HPAI outbreaks in US are controlled according to the USDA's *Red Book, the Highly Pathogenic Avian Influenza Response Plan*
- H5 and H7 are notifiable internationally and must be reported to the World Organization of Animal Health (OIE)
 - ▣ Potential to mutate
 - ▣ Free: 90 days after last infected premise C&D

Concern

- The potential for rapid spread and significant illness and death among poultry during outbreaks of highly pathogenic avian influenza
- The economic impact and trade restrictions from a highly pathogenic avian influenza outbreak
- The possibility that avian influenza A viruses could be transmitted to humans
 - ▣ H7N2 transmission to person in Virginia, 2002

Why Are We Concerned?



VIRGINIA POULTRY FEDERATION

90 YEARS

- CELEBRATING 90 YEARS OF SUCCESS -

VIRGINIA POULTRY INDUSTRY IS...



DIRECTLY AND INDIRECTLY
SUPPORTING NEARLY
52,000
JOBS IN VIRGINIA

PRODUCING AN
AFFORDABLE & WHOLESOME
SOURCE OF PROTEIN TO HELP MEET
GROWING NUTRITIONAL REQUIREMENTS
IN THE U.S. AND AROUND THE WORLD



CONTRIBUTING MORE THAN
\$13 BILLION
TO VIRGINIA'S ECONOMY



MORE THAN
1,100
FAMILY-OWNED FARMS



PRODUCING THE
FINEST POULTRY PRODUCTS
ANYWHERE AND DOING SO IN THE HARMONY WITH
VIRGINIA'S NATURAL RESOURCES



GEORGE'S
INC.

Tyson
Tyson Foods, Inc.

pilgrim's

PERDUE

VFC

Cargill

US Outbreak 2014-2016

History of Recent Outbreak

- December 2014
 - ▣ H5N2 identified in ducks from Washington
 - ▣ H5N8 also identified in ducks from Washington
 - ▣ H5N8 detected in backyard flock in Washington
- January-February 2015
 - ▣ Novel H5N1 reported in a duck from Washington
 - ▣ Multiple detections of H5 viruses in poultry in Pacific Northwest
- March 2015
 - ▣ Multiple detections of H5N2 in poultry along Mississippi and Central flyways
- January 2016
 - ▣ Different strain
 - ▣ Last detection of HPAI in commercial poultry in Dubois Co, Indiana.
 - ▣ 12 premises->400,000 turkeys destroyed plus 1 layer operation.

Epidemiology

- Source H5N2 Serotype appears to be wild waterfowl from Asia>Siberian Strait>BC>WA>OR>CA>Eastward
- Epidemiology of disease spread:
 - ▣ Equipment, boots, equipment not being disinfected on and off farm
 - *SOLUTION - BIOSECURITY*
 - ▣ Feathers, dust, moisture, wind
 - *SOLUTION – RAPID VIRUS CONTAINMENT*
- This virus strain tends to infect turkeys at a lower dose
- In the Midwest, there were few reports of backyard poultry infections but started with BYFs.



All HPAI Detections in Commercial, Backyard, and Captive Wild Birds

December 8, 2014 to August 31, 2015

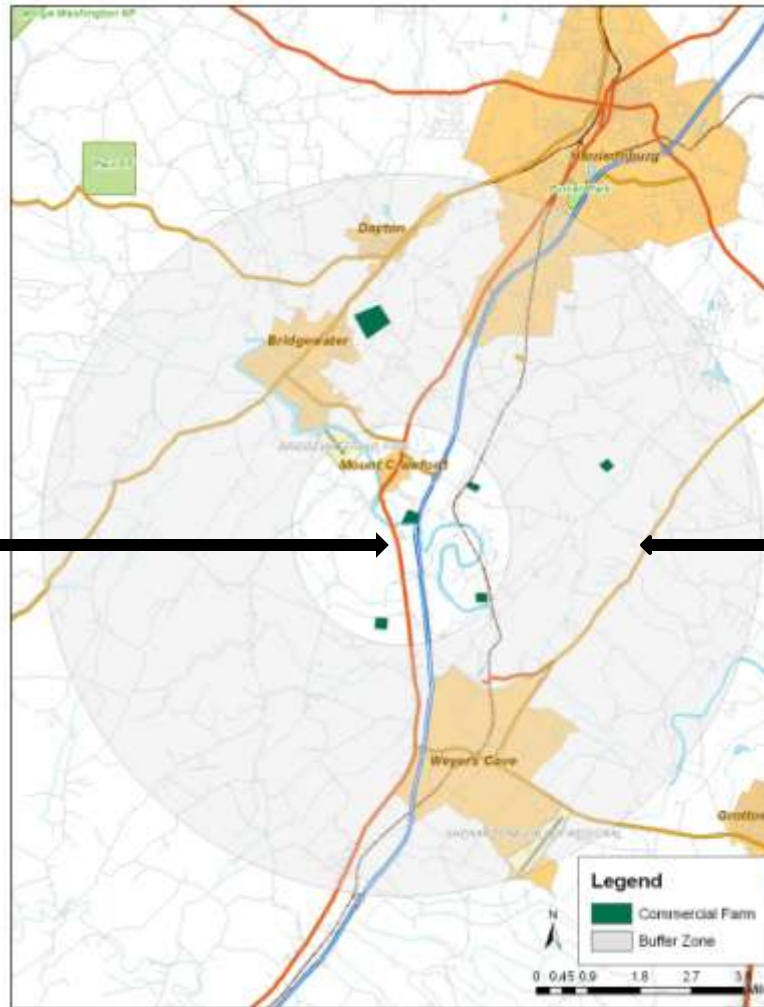


Steps to Halt AI

- **Quarantine**—restricting movement of poultry and poultry-moving equipment into and out of the control area
- **Eradicate**—mass depopulation
- **Monitor region**—testing wild and domestic birds in a broad area around the quarantine area
- **Disinfect**—killing the virus in the affected flock locations
- **Test**—confirming that the poultry farm is AI virus-free

Zones

Infected
Zone (3km)



Buffer
Zone (10km)

Mass Depopulation

- Goal within 24 hours of confirmation
- Humane
- Limit human exposure to AI by using PPE
- Accommodate large-scale eradication efforts
- Methods
 - ▣ Water-based foam (preferred)
 - ▣ Ventilation shutdown

Mass Depopulation



Disposal Methods

- ❑ Landfilling: limitations on what they accept
- ❑ Rendering: aerosolization of virus
- ❑ Incineration: fuel requirements, costly
- ❑ Burial: environmental concerns
- ❑ Composting: not feasible for all operations but is the preferred method of disposal

Disposal



Composting



Cleaning and Disinfection



Outbreak Summary of 2015 Event

- Wild bird detections: 5 states
- Commercial detections: 15 states
- Largest number of detections: Minnesota (101)
- Largest number of birds depopulated: Iowa (>31 million)
- Largest flock size: 4.9 million birds

Economic Impact to US

- >40 countries banned imports
- Cost: >\$950 million

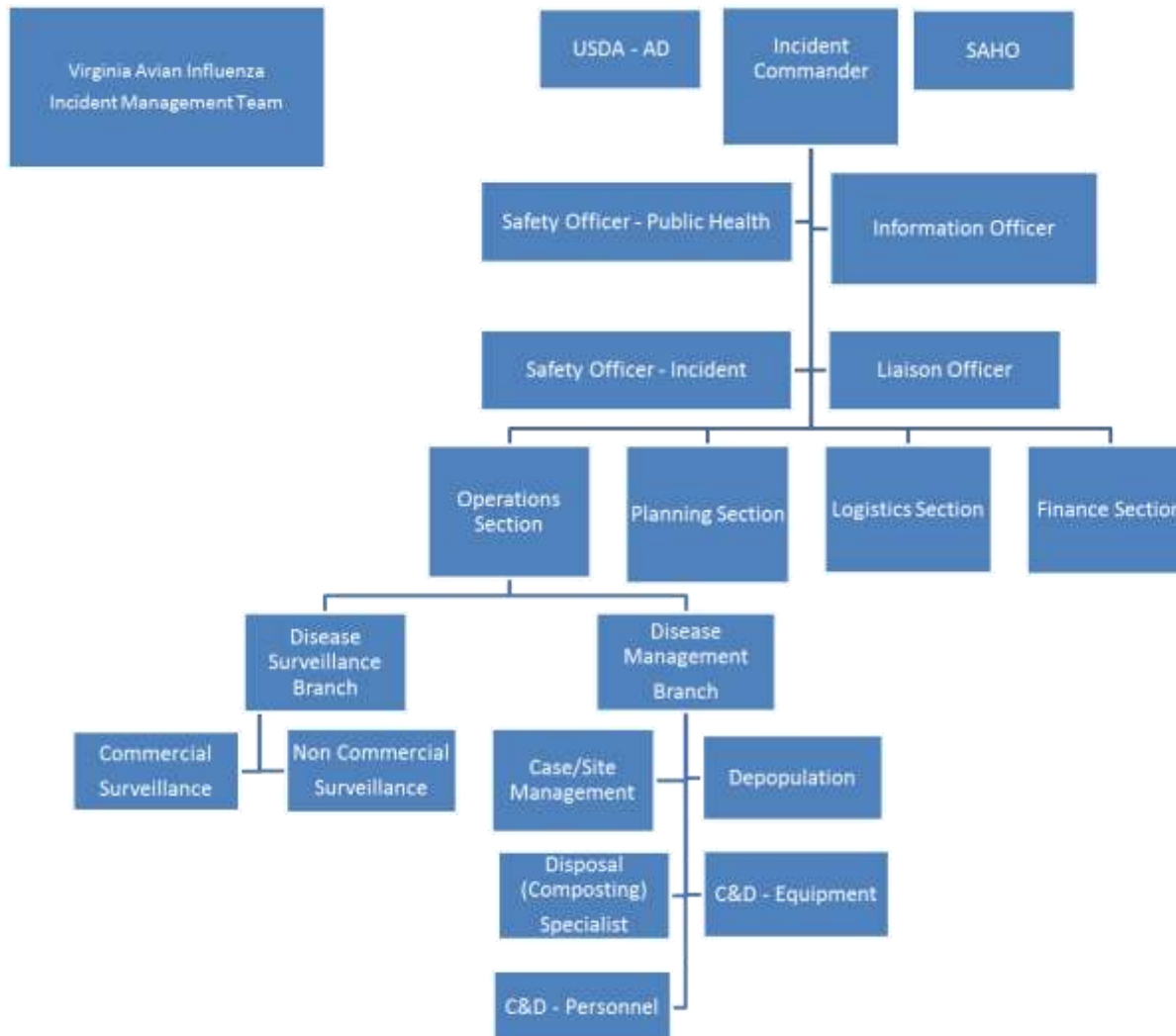
Current Activities in Virginia

- Wild bird surveillance (USDA)
- Reviewing biosecurity plans and protocols
- Planning
 - ▣ USDA: Indemnity and epidemiology of incident
 - ▣ VDACS: Operates via an IMT with IC & General staff
 - ▣ Industry(poultry companies): Conduct testing
 - During event: depop, disposal as contractors
 - ▣ DEQ: Takes lead role in deposal of dead birds.
 - ▣ VDH: Public health concerns and safety
 - ▣ Others

Emergency Agencies Potential Support to an AI Event

- Public Safety – Securing roadways in identified areas where biosecurity has been established.
- Fire Departments -Water resources for euthanization foaming operation.
- Rescue Squads- Transporting Injured Emergency Responders from index farm(s) to local treating facilities.
- Decon of personnel

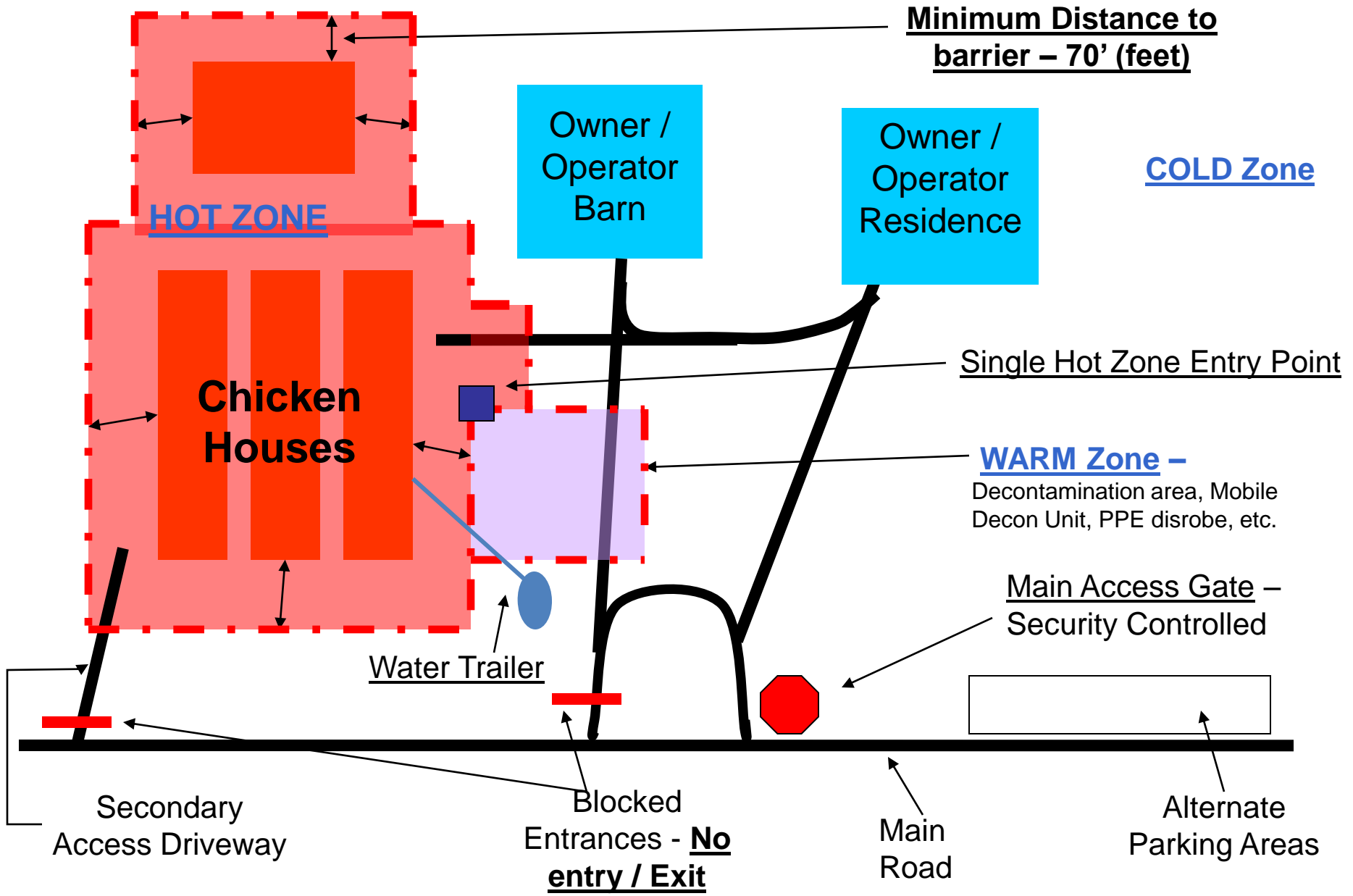
ICS Structure



The Poultry Integrators Role during An AI Event

- Poultry Company Senior Veterinarian participation with the unified command module.
- Index Farm Bio-Security
- Disease Surveillance
- Medical Surveillance of Company Personnel
- Index Farm Occupational Safe Work Practices
- Depopulation
- Composting
- Decontamination/Sanitation

Sample Farm Layout / Diagram w/ ZONES



AI PPE vs. Chemical

AI PPE

- Class C PPE
 - ▣ N95 Particulate Respirator
 - ▣ Eye protection
 - ▣ Chemical Resistant Coveralls
 - ▣ Rubber Gloves
 - ▣ Disposal Outer Footwear
- Class B PPE
 - ▣ PAPR/APR
 - ▣ Chemical Resistant Coveralls
 - ▣ Rubber Gloves
 - ▣ Disposal Outer Footwear

Hazardous Material PPE

- Class C PPE
 - ▣ APR- Respirator
 - ▣ Chemical Resistance Clothing
 - ▣ Gloves applicable to the chemical
 - ▣ Protective footwear applicable to the chemical
- Class B PPE
 - ▣ SCBA – Respirator
 - ▣ Chemical Resistance Clothing
 - ▣ Gloves applicable to the chemical
 - ▣ Protective footwear applicable to the chemical

AIR Responder PPE

Class B PPE



Class C PPE



Responder Medical Requirements

- Within 12 months of event:
 - ▣ Seasonal flu vaccine
 - ▣ Respiratory medical clearance
 - ▣ Respiratory fit testing
- Medical surveillance
 - ▣ After demobilization
 - ▣ Monitor for flu-like symptoms for 10 days
 - ▣ Local health departments

Questions / Discussion????

Open Forum