

## SOIL AND PLANT SCIENCE DIVISION

# Technical Soil Services

## Northwest Soil Survey Region



### **Fort Morgan Major Land Resource Area Soil Survey Office**

## **Onsite Soil Investigation Identifies Suitable Soils for Emergency Animal Mortality Burial Due to a Highly Pathogenic Avian Influenza Outbreak**

### **Purpose**

A large poultry operation (approximately two million chickens) in northeastern Colorado had an outbreak of the Highly Pathogenic Avian Influenza A (HPAI H5N1), creating an immediate need for disposal of carcasses and eggs at the facility. Due to historical success of burial disposal at other facilities in Colorado with outbreaks of HPAI H5N1, the U.S. Department of Agriculture (USDA) Animal and Plant Health Inspection Service (APHIS) and Colorado Department of Public Health and Environment (CDPHE) decided burial of the carcasses and eggs would be the first option for disposal at this facility.

USDA APHIS contacted the Colorado Natural Resources Conservation Service (NRCS) State Office for assistance in providing soil suitability and interpretation maps for the property to help locate a suitable site for an emergency animal mortality burial. The NRCS Colorado Assistant State Soil Scientist, NRCS Colorado Area 2 Resource Soil Scientist, and Soil and Plant Science Division (SPSD) MLRA Soil Survey Leader provided the following interpretation maps and reports from Web Soil Survey (WSS):

- Catastrophic Mortality, Large Animal Disposal, Pit
- Catastrophic Mortality, Large Animal Disposal, Trench
- Catastrophic Event, Large Animal Mortality, Burial
- Emergency Disposal by Shallow Burial

The soils mapped at the site formed from eolian sand (wind-blown sand) and were rated as “Very Limited” for three of the four reports and as “Not Limited” to “Slightly Limited” in



the fourth report. The limitations (and concerns) are due to the high sand content in the soils and seepage potential of the sandy material.

Reviewing the interpretation maps generated by WSS, the NRCS soil scientists saw potentially suitable soils for these four interpretations directly to the south and east of this property. Based on this information, APHIS requested that the NRCS soil scientists conduct an onsite field investigation to locate a more suitable area for disposal by burial at this facility. In the area identified by WSS as having more suitable soils, two large test pits were excavated to closely examine the soils. At each soil pit, the NRCS soil scientists recorded the depths of the horizons, soil textures, percentage of clay and sand, depth to water table, and the depth to bedrock.

## Key Outcomes

Although the NRCS soil scientists described two soil profiles that had different soil properties and characteristics, with proper engineering and design, both sites were rated as suitable burial locations for the disposal of large amounts of animals in a pit or trench. Performing the onsite soil investigation allowed the poultry operation to dispose of the carcasses and eggs efficiently and effectively by burial at the facility, in agreement and within requirements from USDA AHPIS and CDPHE.

Ultimately, the prompt and accurate USDA-NRCS technical assistance and soil services provided the poultry operation, USDA APHIS, and CDPHE with critical information to find an alternative solution for a very urgent and dangerous situation.