

**Report on the High-Mortality Incident  
at the  
Canon City Off-Range Corral in Canon City, Colorado  
April-May 2022**

This report chronicles the facts and circumstances surrounding a high-mortality event that occurred at the BLM Wild Horse Off-Range Corral (ORC) at the Canon City Correctional Facility in Canon City, CO, in April-May 2022. The report also examines decisions made in connection with the event by the BLM and the contractor-operator of the Canon City ORC.

This report was commissioned by the BLM-Colorado State Office and was authored by a joint incident review team that included representatives from the BLM's National Wild Horse and Burro Program, the BLM-Nevada State Office Wild Horse and Burro Program, the Colorado Department of Corrections (CDOC) Office of Inspector General, Colorado Correctional Industries (CCI), and the Colorado State Veterinarian's Office. The team relied on interviews with staff, agency and contractor records, and site visits to conduct its review. The review team also drew from a separate independent assessment of compliance with BLM's Comprehensive Animal Welfare Program (CAWP) Standards for Off Range Corrals conducted by the BLM's CAWP team at the Canon City ORC May 20, 2022, and presented in a [report dated May 24, 2022](#).

The incident review team offers recommendations to sustain or improve procedures, operations, communications, coordination, etc., to minimize the likelihood of a recurrent high-mortality event in the future. Where certain facts are as-yet unknown, the authors note this and allow that future findings/results may further inform understanding of this event.

#### ESSENTIAL BACKGROUND

The Canon City ORC serves as a preparation and maintenance facility for excess wild horses removed from public rangelands throughout the West and made available to the public for adoption or purchase or eventual retirement to Off-Range Pastures. It is among a network of 26 ORCs that the BLM operates or contracts to operate in a dozen states. The Canon City ORC is a contracted operation with CCI which provides the physical plant and much of the required labor. It has operated as an ORC in one capacity or another for more than 30 years (formerly employing inmates to train horses for adoption). Canon City is among the largest ORCs, spanning 100 acres with numerous large corrals and paddocks, smaller individual pens, connecting alleys and working chutes. With a maximum capacity of 2,950 head, the facility maintained an average of 2,057 horses over the past 12 months.

On April 23, 2022, workers at Canon City discovered nine dead horses in a set of corrals on the facility's north side. No apparent signs of illness or distress had been observed or recorded beforehand. In the days and weeks that followed, many more horses in the same corrals died under similar circumstances, eventually totaling 145 from all age and sex groups. All of the horses that died were among a group of 445 that were initially removed from the West Douglas Herd Area in western Colorado in August 2021 under emergency conditions after wildfires imperiled the animals and threatened forage availability.

#### INITIAL RESPONSE

Upon discovery of the deceased animals, the facility manager engaged the attending veterinarian and a consulting veterinarian with the USDA Animal and Plant Health Inspection Service (APHIS). A voluntary quarantine was immediately implemented preventing any animals from entering or leaving the facility

(or initially being moved within the facility to limit potential internal spread). The USDA APHIS Veterinary Services issued a [Preliminary Site Visit/Outbreak Investigation Report](#) on April 26, 2022, that defined and outlined the initial scope of the problem, a diagnostic plan to identify the cause(s) of the outbreak, and enhanced biosecurity measures to limit spread of the problem within and outside the facility. Fifteen deceased animals from among the first groups to die were sent for necropsy at the Colorado State University Veterinary Diagnostic Laboratory. Additional diagnostic samples were also sent to a specialty laboratory at the University of California, Davis. Laboratory tests were conducted on all major organ tissues, blood and serum from deceased and still-living horses showing clinical signs of illness. By April 28, tests had identified a common equine influenza virus as the likely cause of the respiratory disease outbreak complicated by a streptococcus bacteria identified on May 5, 2022, that led to high mortality among the West Douglas horses.

The BLM-Colorado State Office issued two press releases in the first week to notify the public of the situation and diagnosis ([April 25](#) and [April 28](#)). The BLM-Colorado State Office also began posting daily [Situation Reports](#) on its public website April 28 to provide additional details as they became available. The press releases and Situation Reports were prepared and issued in collaboration with the consulting APHIS veterinarian, Colorado State Veterinarian's Office and CDOC.

#### ANIMAL CARE AND CONDITION

The West Douglas horses arrived at Canon City in a body condition range of 3-4 on the Henneke scale which is considered "thin" to "moderately thin." They were placed on a heavy ration of 34 pounds of alfalfa hay per horse per day with free access to clean water. By April, the animals had achieved an average body condition score of 5 which is considered "moderate."

#### VACCINATION DELAY

The review team looked closely at the reasons why the West Douglas horses remained in the facility for approximately eight months before receiving any of the vaccines that are required for animals in BLM holding. While this delay is not, in and of itself, a violation of BLM policy, it is an unusually long time for newly arrived horses to remain unvaccinated. Current BLM policy on the preparation of animals only requires them to be identified (freezemarked) and Coggins tested within 30 days of arriving at a facility (unless advised otherwise by the attending veterinarian based on animal condition or behavior). Vaccination is usually done concurrently with these other required preparation steps.

The West Douglas horses arrived at the Canon City ORC starting July 29, 2021, with the last shipment arriving August 14, 2021. The horses were all moved through the chutes August 16-17 to have blood drawn for Coggins and microchips implanted. The animals were not vaccinated at that time, though facility records indicate that a supply of vaccine sufficient to administer to all of the West Douglas horses was available at that time. Since the West Douglas horses are held in separate corrals at least 180 yards distant from other horses in the facility – thus preventing contact and limiting concern about the spread of infectious diseases – the facility manager, in consultation with the attending veterinarian, elected to hold the available vaccine to administer required boosters for other horses in the facility that would be coming due or would be selected for shipment to adoption events or Off-Range Pastures. Rationing available vaccine in this way might not have been seen as necessary if a refrigerator malfunction a month earlier had not compromised a batch of 960 vials that then had to be replaced.

The West Douglas horses were also not freezemarked at the time they were worked through the chutes on August 16-17, as that would have added several more days to the operation which could have delayed the return of Coggins results, jeopardizing the planned arrival of horses from another emergency gather in early September. The facility was effectively quarantined until negative Coggins

results were received for the West Douglas horses. While this management decision may be defensible in terms of operational necessity, it does not strictly adhere to BLM's policy regarding preparation of animals.

Other developments in the months that followed contributed further to the delay:

From September 1 through September 12, 2021, BLM-Colorado carried out an emergency gather and removal operation in the Sand Wash Basin Herd Management Area (HMA) to address imminent herd and land health issues. The Sand Wash Basin horses – 632 in total – were sent to the Canon City ORC due to its proximity in-state and available holding capacity. The Sand Wash Basin herd, like other select BLM-managed wild horse herds, has a passionate public following that strongly opposed the removal action. Following removal of the excess Sand Wash Basin horses, highly vocal demand arose for them to be made available to the public for adoption as soon as possible. No such demand accompanied the removal of the West Douglas horses. Consequently, the Sand Wash Basin horses were placed ahead of the West Douglas horses in priority for preparation, vaccination, etc. Preparation of the Sand Wash Basin horses began on November 8, 2021, and concluded on January 25, 2022. They were made available for adoption on March 5, 2022.

Soon after concluding preparation of the Sand Wash Basin horses in January, the facility received a shipment of 223 horses from a large planned gather in Wyoming (involving five HMAs) that removed a total of 3,502 excess horses. The bulk of the animals were sent to two preparation facilities in Wyoming (Rock Springs and Wheatland). The volume and mix of animals sent to those facilities effectively maxed out their operational capacities (though not necessarily their nominal holding capacities), so Canon City was asked to take as many as it could. Based on current and projected workload and other operational constraints, Canon City agreed to take 223 of the Wyoming horses. Since the horses sent to Canon City were shipped across state lines directly from the gather site without a Coggins test, by agreement between BLM and the Colorado State Veterinarian's Office, the animals were to be tested immediately upon arrival in-state. This again caused a reprioritization of work at Canon City, placing the Wyoming horses ahead of the West Douglas horses. Preparation of the Wyoming horses was completed on March 1, 2022.

Canon City began preparing and vaccinating the West Douglas horses on April 13, 2022, with initial mortality occurring about 10 days later, causing preparation work to be halted. A total of 146 horses had received their primary doses of vaccine, and the first incidents of mortality were observed among that same group. Of the 145 West Douglas horses that eventually died, 47 were among the partially vaccinated group and the remaining 98 were unvaccinated.

#### STAFFING ISSUES

As noted in the CAWP assessment report, the facility did "not have enough employees on a consistent daily basis to complete all the work required in a timely manner." The bulk of the labor for daily care and feeding of the animals at the facility is performed by inmates from the Canon City Correctional Facility. A full complement of inmates is typically between 20-25. They perform such daily tasks as hauling hay, trimming hooves, cleaning corrals, general maintenance, etc. During the COVID pandemic, CDOC periodically limited inmate availability to safeguard human health. On some days, the number of inmates present was just enough to cover feeding operations. BLM and CDOC staff assigned to the corrals – which together number about six (depending on the number of inmates present) – would often be stretched to perform other essential work such as gelding and boosting horses for shipment to adoptions or pastures, receiving shipments from gathers, and other daily tasks. As noted in the CAWP report, facility maintenance was also delayed due to staffing shortages.

## BIO-SECURITY MEASURES

Bio-security protocols at the Canon City ORC adhere to generally accepted practices for similar large-scale livestock operations. Following the initial deaths in late April, facility staff implemented enhanced biosecurity measures. These included the use of personal protective equipment, cleaning and disinfecting trucks and equipment, using separate equipment to feed the West Douglas horses, and using a dedicated loader for removing carcasses. The facility maintains an arrangement with a sanitary landfill which complies with state law to allow for timely and safe removal and disposal of carcasses.

## UNKNOWN HOST AND ENVIRONMENTAL FACTORS

A major question still under review is why the spread of a common equine virus affected this particular group of horses so severely. While the virus was found to be present among other horses in the facility, to date the only deaths attributed to the infection have been among the West Douglas horses. As noted, the West Douglas horses were gathered and removed due to wildfire impacts in the area they inhabited. Necropsy results showed lung damage beyond what would normally be expected from viral pneumonia. Whether this is attributable to a more virulent subtype of the virus or the concurrent infection with an unusually virulent subtype of streptococcus bacteria remains under investigation. It is possible that the lungs' defenses may have been compromised from smoke and dust, making the horses particularly susceptible to complications arising from equine influenza. Another question still under review is why the West Douglas horses, after remaining in the facility unvaccinated for approximately eight months (over winter), succumbed to complications arising from influenza in April.

Respiratory disease in horses is often multifactorial in etiology. Multiple pathogens may play a role in the disease process. Often a single pathogen – in this case likely equine influenza virus – is the initiating agent of an outbreak. While respiratory disease is common in equines, high mortality rates are much less so. When horses are challenged with multiple pathogens concurrently, the disease outcome can often be more severe. The initial findings of both a viral and potential secondary bacterial component in this outbreak may have contributed to the mortality rates observed.

Testing of the exact genetic makeup of the influenza virus and of its virulence, as well as a possible secondary bacterial component, may lend answers to the exact pathology of this high mortality event. Unfortunately, this type testing is a long and difficult process, and answers to these questions will take considerable time to obtain.

It is important to note that while vaccinations are a key component in preventing respiratory disease in equines, at the time vaccinations are administered a stress is placed on the animal's immune system initially before the desired protection is achieved. The process of handling the horses for that initial vaccination and the vaccine administration itself could explain the timeframe of the outbreak.

Lastly, the affected group of horses have a consistent and uniform phenotype and may be genetically very similar. This and the specific range on which these horses occupy, i.e. fairly isolated from potential contact with domestic equines, may play a role in the increased susceptibility of this group and higher than normal mortality for such an outbreak.

## CONCLUSIONS AND RECOMMENDATIONS

The review team acknowledges that the Canon City ORC faced many challenges since receiving the West Douglas horses in August 2021, some of which were exacerbated by the COVID pandemic. It is not clear that any of these challenges by themselves or together caused or worsened the high-mortality event

that occurred in April 2022. Nevertheless, the review team offers some recommendations to potentially mitigate future challenges.

**CAWP Assessment** – The review team concurs with the findings and recommendations of the CAWP assessment report to improve facility operations and animal care.

**Staffing Issues** – To the extent that inmate labor remains a constraint on operations at the Canon City ORC, BLM should consider what remedies are available to the agency under the terms of the current contract to improve consistency and reliability. BLM-Colorado should also prioritize hiring and/or adding BLM staff positions to support operational requirements at the Canon City ORC.

**Gather Planning** – BLM should fully consider receiving facilities’ operational capabilities – in addition to their holding capacities and proximity to gather sites – when determining the scale and timing of planned gathers and the destination of excess horses, to ensure facilities’ ability to comply with established animal preparation and care policies. The review team acknowledges that gathers are highly complex logistical and administrative actions that are planned many months in advance to: address exigent herd and land health issues; comply with the National Environmental Policy Act, related public review and comment requirements, and Federal Acquisition Regulations; and mobilize required resources. The review team also acknowledges that emergency situations on-range present unique challenges and urgencies. The review team further acknowledges that conditions at facilities can and do change unexpectedly and that adaptive management is often required to meet overall mission objectives.

**Vaccine Storage** – Refrigerators used for vaccine storage should have temperature monitoring devices that signal when problems occur with cooling systems.

**Communications** – The review team recommends that BLM-Colorado sustain collaborative and proactive public communications and outreach. The use of daily situation reports was a particularly effective way to maximize transparency in the wake of the high-mortality event at the Canon City ORC.

**Records Management** – Some records used by the Canon City ORC, such as those to track vaccine acquisition/use and calendaring daily activities, are handwritten on paper. The review team recommends utilizing more efficient office automation technology for managing daily activities.

**Biosecurity** – The review team recommends maintaining some of the enhanced biosecurity measures that were implemented in the wake of the high-mortality incident.

**Timing of Vaccinations** – The review team advises that BLM implement policy requiring vaccination of newly gathered wild horses and burros within a timeframe consistent with other required animal preparation steps.