United States Environmental Protection Agency

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Identifying and Controlling Discharges from HORSE RACING OPERATIONS

This brochure showcases suggested best management practices (BMPs) that can promote the cleanliness and safety of horse race tracks by minimizing or eliminating unlawful discharges of process wastewater[1] to waters of the United States.[2] It also highlights common Clean Water Act (CWA) noncompliance problems that U.S. Environmental Protection Agency (EPA) Region 6 has observed at concentrated animal feeding operations (CAFOs) that confine and maintain race horses. EPA's goal is to provide guidance and compliance assistance to operators of horse CAFOs on the proper storage and management of horse manure, bedding materials, feed, and contaminated runoff (i.e., process wastewater) from production areas.

[1] Process wastewater includes water directly or indirectly used in the operation of a horse CAFO, such as overflow from animal watering systems, or water used in washing or spray cooling of animals or in dust control and direct contact swimming. Process wastewater also includes any water which comes into contact with any raw materials, products, or byproducts including manure, feed, and bedding materials. [40 C.F.R.§ 122.23 (b)(7)] . The production area is the part of the horse CAFO that includes: (1) the animal confinement areas (including confinement houses, barns, walkers, and animal walkways), (2) the manure storage areas (including lagoons, runoff ponds, storage sheds, stockpiles, and bins), (3) the raw materials storage area (including bedding materials), (4) the waste containment area (including the areas within berms and diversions which separate uncontaminated storm water), and (4) the area used in managing mortalities. [40 C.F.R. § 122.23 (b)(8)]

[2] Waters of the United States as defined by Section 502(7) of the CWA and 33 C.F.R. Part 328.

What Constitutes Unauthorized Discharges to Waters of the U.S.?

The most common CWA noncompliance problems observed by EPA Region 6 at horse CAFOs include unauthorized discharges of pollutants (e.g., nutrients, bacteria, pathogens, toxins, etc.) in process wastewater to waters of the U.S. These unauthorized discharges can be categorized as follows:

1. Unpermitted discharges to a water of the U.S. via man-made ditches or drainage ways
2. Unpermitted discharges to a water of the U.S. via municipal storm drains or storm water collection systems
3. Discharges resulting from failure to comply with permit requirements

The CWA and federal regulations prohibit the discharge of pollutants, such as discharges of process wastewater, from a CAFO to a water of the U.S., except under very limited circumstances. Large horse CAFOs with CWA permits are only authorized to discharge to a water of the U.S. when the facility (i.e., its retention pond) is designed, constructed, operated and maintained to contain all process wastewater as well as the runoff from a 25-year, 24-hour rainfall event. (See 40 C.F.R. § 412). A 25-year, 24-hour storm event is the maximum 24-hour rainfall event with a probable recurrence interval of once in 25 years. For example, in New Orleans, LA, it is 10 inches of rain in 24 hours, and in Albuquerque, NM it is about 3.5 inches.

Operators of horse CAFOs that do not have CWA permits are never authorized to discharge. They must ensure that no water that comes in contact with animals, manure, bedding, feed, or other raw materials in areas where animals are exercised, fed, or are washed down is discharged to a water of the U.S. These areas are part of the production area (Figure 1), and runoff from all these areas is process wastewater. All discharges, including discharges of process wastewater, from an unpermitted CAFO to a water of the U.S., violate section 301(a) of the CWA and the CWA permitting regulations at 40 CFR § 122.21(a).

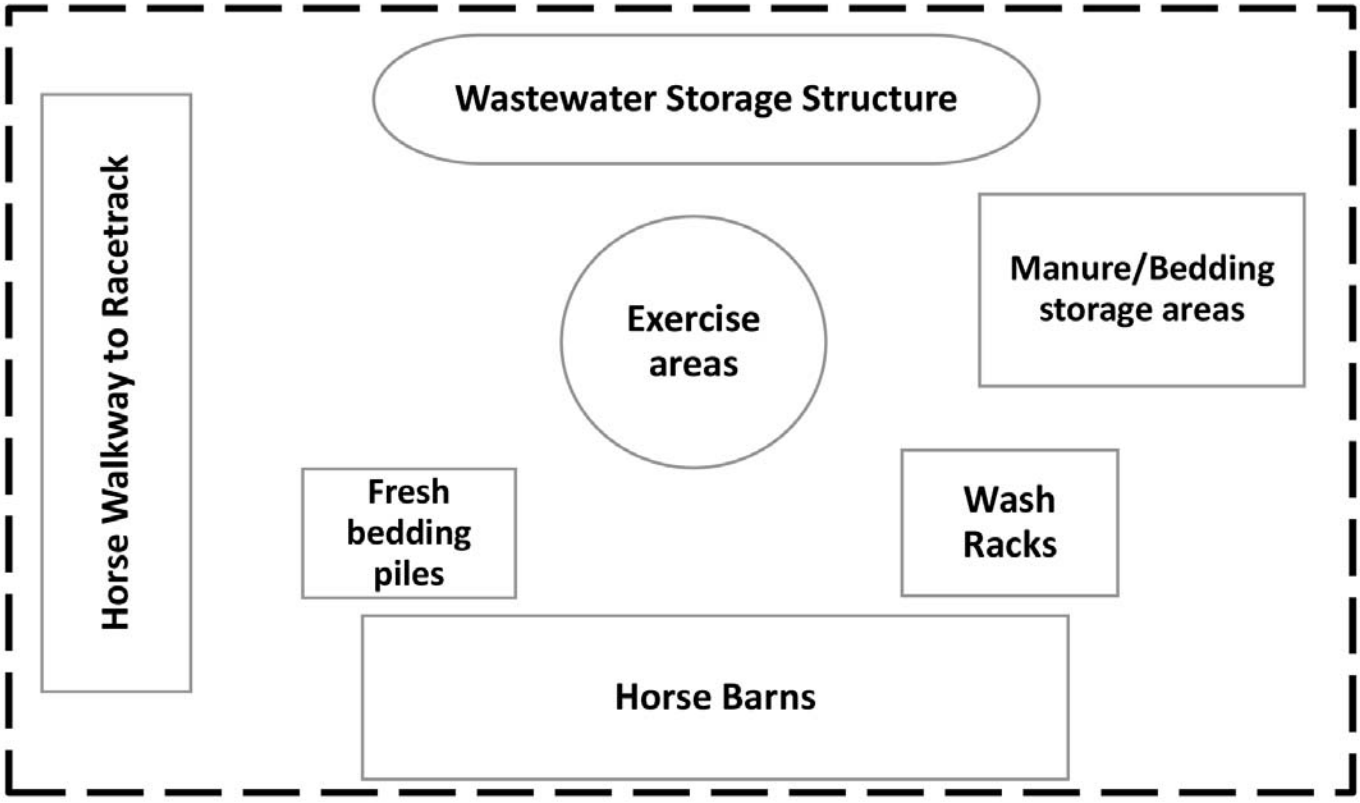

Figure 1: Horse CAFO production area. This diagram shows potential sources of process waste water.

Examples of Unauthorized (i.e., Unpermitted) Discharges to Waters of the U.S. via Man-made Ditches

Poor Practices:

EPA inspectors observed uncovered manure storage areas and horse wash racks at a non-permitted horse CAFO (Photos 1 and 2) that generated large quantities of process wastewater. This particular facility was found to be operating without a properly designed lagoon for wastewater storage. The facility simply discharged its process wastewater into man-made drainage ditches and canals (Photo 3) which ultimately discharged to a water of the U.S., in violation of Section 301(a) of the CWA and the federal permitting regulations at 40 C.F.R. §122.21(a).

Recommended Practices:

In response to EPA's Administrative Order, another facility that had previously violated its CAFO permit by discharging to waters of the U.S. via man-made ditches constructed a horse wash water collection system that operates like a municipal sewage collection system. The system is designed to collect horse wash water from the 22 horse barns at the facility. Each barn has four wash racks that discharge wash water into two subsurface tanks. The subsurface horse wash water collection system is serviced by seven lift stations equipped with dual grinder pumps (and a beacon alarm) from which horse wash water is pumped into a properly designed and constructed lagoon (Photo 4). The facility also modified its existing manure storage bins by installing longer wing walls, a metal roof to minimize rain water contact, and a metal ramp to prevent spillage of manure outside the manure bins (Photo 5). A dedicated employee utilizes a tractor for transporting manure from manure bins into tarp-covered roll-off containers. The facility is planning to purchase a vacuum truck to keep the subsurface collection tanks clean and a hydrojetter to maintain the proper functioning of the horse wash water collection system.

Photo 1. Improper manure storage.

Photo 2. Wash rack drainage ditch.

Photo 3. Drainage ditch receiving process wastewater from wash racks.

Photo 4 (left). All the horse wash water generated from covered wash racks is collected and pumped into a properly designed lagoon.

Photo 5 (right). Modified manure storage bin with extended walls and a roof to minimize contact with storm water.

Examples of Unauthorized (i.e., Unpermitted) Discharges to Waters of the U.S. via Storm Drains

Many horse racing facilities operate in or near large municipalities with large storm drain collection systems (i.e., Municipal Separate Storm Sewer Systems or MS4s). Unpermitted discharge to these systems violates the CWA and regulatory requirements for CAFOs and for MS4s. The state regulatory program and the city may have additional requirements to ensure CWA compliance at these facilities.[3]

Poor Practices:

EPA Region 6's investigations revealed unauthorized discharges from an unpermitted horse CAFO with a lagoon that was designed and operated to receive process wastewater runoff (i.e., horse wash water plus other water from the production area), and storm water runoff from city streets. The comingled waste streams were then discharged to a water of the U.S. via the city's MS4, in violation of the CWA.

Recommended Practices:

In response to EPA's Administrative Order, the horse CAFO operator agreed to apply for a CWA permit and to undertake the construction activities needed to isolate and separate the three waste streams –runoff from the production area, storm water runoff from city streets, and horse wash water from horse wash racks. As shown in Photo 6, a dam was installed in the lagoon to separate process wastewater runoff from the CAFO production area and storm water runoff from city streets. The facility constructed a concrete-lined collection/conveyance system (Photo 7) to collect horse wash water from covered horse wash racks and convey it into two below ground tanks from where it is pumped and discharged into the city's publicly owned treatment works (POTW) in accordance with a city issued pretreatment permit. Uncontaminated roof runoff (which is considered a diversion of clean water and is not regulated) is collected and discharged into the city's MS4.

Photo 6. Dam to separate storm water runoff from city streets and runoff (process wastewater) from the CAFO production area. The left side is the storm surge pond used to store runoff from city streets. The right side is the CAFO wastewater retention pond.

Photo 7. Covered horse wash rack connected to a concrete-lined wastewater conveyance system.

[3]Some cities will allow this waste to be pumped, to some extent, into the sanitary sewer system. City sanitary wastewater treatment plants can, under some restrictions, properly process this waste. The city will require controls and monitoring to ensure the discharge does not result in a treatment plant upset.

Examples of Unauthorized Discharges Resulting from Non-Compliance with Permit Requirements

EPA Region 6's investigations also revealed a large horse race track CAFO with violations of its CWA permit that resulted in unauthorized discharges to waters of the U.S. via a city's MS4. In this circumstance, the CAFO's CWA permit allows it to discharge process wastewater to the MS4, but only during a 25-year, 24-hour storm event. The CAFO would be in violation of its permit requirement if it discharges process wastewater into the city's MS4 during rainfall events that are smaller than the 25-year, 24-hour storm event and/or if discharges occurred during dry weather conditions. The sources of unauthorized discharges of process wastewater found at this facility included uncovered horse wash racks (Photo 8), leaking manure storage bins (Photo 9), washing machines that discharged on to the ground, spilled manure and/or bedding material, and raw materials (e.g., feed) stored in the open.

Photo 8. Uncovered horse wash rack located between barns.

Photo 9. Old and leaking steel dumpsters for horse manure storage.

An Example of a Permitted Large Horse CAFO that is in Compliance with its CAFO Permit

Below are pictures of a permitted, well-managed large horse CAFO with capacity to confine and stable about 1,600 horses. All horse wash racks at this facility are located inside the barns and wash rack drains are plumbed into the sanitary sewer system. Water that runs off of the production area, including the barn area and horse walking area, drains into a waste retention structure that is designed, constructed, operated and maintained to contain all process wastewater plus runoff during a 25-year, 24-hour storm event (Photos 10 and 11). Process wastewater from this retention structure is used to irrigate the turf race track and for dust control on the dirt race track. Any runoff from the turf and dirt race tracks is contained in a lagoon that overflows into the process wastewater retention structure. The facility has a nutrient management plan and conducts soil sampling of the turf track to determine how much commercial fertilizer is needed in addition to the use of process wastewater.

Manure from muck bins is stored in two covered manure barns (Photo 12). Manure is picked up daily by a third party. Manure is also sampled annually and analyzed. Results are provided to the third party. Tonnage reports document the quantities of manure hauled offsite.

Photo 10. Storm water drain that collects runoff from the horse barn area and horse path areas.

Photo 11. Retention control structure for storage of storm water runoff from the horse barns, horse paths, and manure storage areas/barns.

Photo 12. Covered and concrete-lined manure storage barn.

Recommended BMPs

To comply with the CWA and eliminate unauthorized discharges from the production area of a large permitted horse race track CAFO, BMPs include:

- Design, construct, and operate a wastewater retention structure with adequate capacity to contain all process waste water plus runoff during the 25-year, 24-hour storm event.
- Utilize covered horse wash areas with discrete conveyance systems connected to the wastewater retention structure.
- Use covered manure storage sheds.
- Exclude uncontaminated storm water runoff from the facility's production area.

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