



**Minnesota
Pollution
Control
Agency**

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Feedlot Construction Setbacks from Open Water and Wells

Water Quality/Feedlots #8.30 • May 2009

State rules require minimum setbacks of feedlots and manure storage areas from open water and wells. Feedlot operators should be aware of Minn. R. ch. 7020 when siting a new feedlot or manure storage area, or when expanding an existing feedlot. The Minnesota Department of Health (MDH) administers well setbacks required in Minn. R. ch. 4725, also described in this fact sheet.

Many local ordinances have more restrictive setbacks than state rules. If more restrictive, local ordinances must be followed. Local governments also determine setbacks from residences, roads, and towns. An interactive Web map providing information on local ordinances regulating animal agriculture in Minnesota's counties and townships may be found at the following Minnesota Department of Agriculture Web site: www.mda.state.mn.us/animals/aodisclaimer.htm.

Contact your county planning and zoning office for the most current information on local ordinances.

Setbacks from open waters

Surface water is protected from feedlot activities through siting and expansion restrictions in designated shoreland zones. Shoreland is defined in Minn. Stat. § 103F.205 to include:

- land within 1,000 feet of the normal high-watermark of lakes, ponds, or flowages
- land within 300 feet of a river or stream
- designated floodplains

Shoreland areas are depicted in Figure 1. Lakes, ponds or flowages smaller than 25 acres in rural areas are not regulated under state shoreland rules (Minn. R. ch. 6120). However, some local ordinances may designate shoreland areas around public

Figure 1. Shoreland



waters less than 25 acres. Check with your local zoning authority to determine whether a given water body is surrounded by a designated “shoreland” or floodplain.

Feedlot construction setbacks near open waters are prescribed in designated shoreland areas (Table 1). Manure stockpiling setback restrictions apply to a broader classification of state waters, as described on page 3.

New feedlots or manure storage near waters

The following restrictions apply to new feedlots and new manure storage areas. “New feedlots” means construction where feedlots or manure storage areas do not already exist, or where an existing feedlot has not been used during the past five years. Feedlots that have been unused for more than five years may still be considered an existing feedlot if an interim permit is first obtained (Minn. R. 7020.2005, subp. 1.A.1 and Minn. Stat. § 116.0711(e)).

New feedlots: New animal feedlots are not allowed in designated shoreland areas.

New manure storage areas: New manure storage areas may not be constructed in shoreland areas. Exceptions may be allowed if construction of a liquid manure storage area is needed at an existing feedlot to correct an existing pollution hazard.

Expansions at existing feedlots near waters

The following restrictions apply to feedlot expansions near open waters. Expansions include any activities to increase the number of animal units a feedlot is capable of holding or to increase storage capacity of a manure storage area.

Expansions if over 1,000 animal units: Expansions in shoreland areas cannot result in a feedlot capacity exceeding 1,000 animal units. No expansion is allowed in shoreland areas at existing feedlots or manure storage areas with 1,000 or more animal units.

Expansions in 100-year floodplain: Existing animal feedlots or manure storage areas may not expand if located in a 100-year floodplain. Exceptions may be allowed if construction of a liquid manure storage area is needed at an existing feedlot to correct an existing pollution hazard.

Table 1. Is construction allowed near open waters?

	New feedlots	New or expanded liquid manure storage area at an existing feedlot	New or expanded barn or open lot at an existing feedlot
Designated shoreland (e.g. 1000' from lakes or ponds over 25 acres or 300' from streams)	No	No, except if needed to correct a pollution problem	Yes, up to 1000 AU and no encroachment to waters
Floodplains (100 year)	No	No, except if needed to correct a pollution problem	No
Near other waters (not designated shoreland or floodplain)	Yes (see page 3 for stockpile setbacks)	Yes	Yes

Yes – Construction may occur if all discharge standards will be met.

No – Construction is not allowed in this situation.

Expansions in shoreland areas that are not floodplains: At existing feedlots and manure storage areas with less than 1,000 animal units, the capacity of a feedlot or manure storage area may only be increased up to a total of 999 animal units in shoreland areas.

No encroachment to waters: No expansion or construction activities may result in any portion of the feedlot or manure storage area being located closer to the water than the existing feedlot and manure storage area. Exceptions may be allowed if construction of a liquid manure storage area is needed to correct an existing pollution problem.

Permit needed to resume operation at unused feedlot: Resuming operation of a feedlot in shoreland that has not been used during the past five years may only occur after obtaining an interim feedlot permit.

Manure stockpiling near waters

Manure stockpiling is allowed in shoreland only at existing sites and only where all minimum setbacks are met. Existing stockpile sites include all locations used for stockpiling prior to October 2000 that continue to be used at least once every five years. Stockpile sites that have



been unused for more than five years and less than ten years may still be considered an “existing” stockpile site if an interim permit is first obtained.

Minimum stockpiling setbacks from waters of the state or road ditches that flow to waters of the state are as follows:

- No stockpiling within 300 feet of flow distance (the path runoff water takes as it flows off of a field).
- No stockpiling within 50 feet, even where the flow distance exceeds 300 feet.

No stockpile site may create a pollution hazard. Setback restrictions for manure

stockpiling near sinkholes, rock outcroppings, and other areas are described in Minn. R. 7020.2125 and summarized at the Minnesota Pollution Control Agency’s (MPCA) Web site www.pca.state.mn.us/hot/feedlots.html.

Setbacks from water-supply wells

Well water is protected from feedlots by requiring separation distances between manure storage areas and water-supply wells. Setback distances decrease the likelihood that contamination from a manure release could enter a well.

Table 2. Minimum setbacks from all wells (in feet)

	New feedlot or animal holding area	New manure storage area at existing or new animal holding area	Expanded animal holding area (without new storage) at an existing facility
Cased wells (Watertight)	Roofed: 50 Unroofed with 300+ AU: 100	Liquid: Concrete or composite liner – 100 Earthen liner – 150 Noncertified basins – 300 Solid: Unroofed – 100	Roofed: 50 Unroofed with 300+ AU: 100
Sensitive wells	Roofed: 100 Unroofed with 300+AU: 200	Liquid: Concrete or composite liner – 200 Earthen liner – 300 Noncertified basins – 600 Solid: Unroofed – 200	Roofed: 100 Unroofed with 300+AU: 200

Required separation distances between feedlots and wells are found in MPCA feedlot rules (Minn. R. 7020.2005), and state well code rules (Minn. R. ch. 4725.4450). The well code rules which are not retroactive establish setbacks for all active and inactive water supply wells not sealed in accordance with MDH requirements. These setbacks as described below and summarized in Table 2 apply to contaminant sources and wells constructed or modified after the latest rule revision promulgated on August 4, 2008. Once a licensed well contractor seals a well, the setback distances no longer apply.



a well and unroofed lots within 100 feet. The setback must be doubled if the well is sensitive, as earlier defined.

The well code also requires a 50-foot separation distance from “a feeding or watering area within a pasture” where vegetative cover cannot be maintained because of the presence of animals or animal manure (Minn. R. 4725.4450, subp. 1, E(3)).

Public water-supply wells

Public water-supply wells are protected by the minimum setbacks for all wells as previously described. Increased setbacks

MDH well setback requirements are specified for both animal holding areas (barns, outdoor lots, etc) and manure storage areas (manure stockpiles or liquid storage). Water-supply wells must be located at the highest practical elevation and should not, whenever possible, be located down slope from a contamination source. The setbacks depend on well construction and double when the wells are uncased or poorly cased (sensitive) such that they do not have either:

- at least 50 feet of watertight casing
- watertight casing that penetrates at least ten feet of clay or shale layers

“Watertight casing” is grouted or driven to prevent open annular space around the well casing.

To use the shorter setbacks (for properly cased wells), well construction information is needed. The landowner must submit information about the year of well construction, well depth and any well records or other documentation showing well construction and geologic information. If the well casing depth is unknown and the shorter setbacks are needed, a Minnesota-licensed well contractor must remove the pump and measure casing depth and total well depth to confirm at least 50 feet of casing.

New feedlots or manure storage areas (300+AU): New unroofed feedlots 300+ AU or manure storage basins lined with concrete or composite material may not be constructed within 100 feet of a well; 150 feet for earthen liners (Minn. R. ch. 4725.4450). This distance must be doubled if a manure storage basin is to be constructed near a sensitive well, as earlier defined.

New or expanded animal holding areas at existing feedlots: A barn or roofed animal holding area may not be added or expanded at an existing feedlot within 50 feet of

are required near certain types of public wells. Setback distances also depend on the proximity to and vulnerability of the “drinking water-supply management area” designated for the public well.

Drinking water-supply management areas

The scientifically delineated area surrounding a well that supplies a public water system is called the “wellhead protection area.” The “drinking water-supply management area” (DWSMA) encompasses the wellhead protection area and uses identifiable landmarks as boundaries. The “drinking water-supply management area” is the land where effective management of potential sources of pollution is particularly important to prevent contamination of a public water-supply well. Producers need to be aware of drinking water-supply management areas, especially those that have been identified by local public water suppliers to be vulnerable to contamination.

To determine which wells and land areas are considered “vulnerable” and to identify boundaries of wellhead protection areas and drinking water-supply management areas for public water-supply systems, contact the local public water supplier, MDH at 800-818-9318, or the MDH Web site (look under Source Water Protection online at www.health.state.mn.us/divs/eh/water/).

All permit applications for construction of manure storage areas in MDH-approved drinking water-supply management areas must include the following (Minn. R. ch. 7020.2100, subp. 4.B.):

- feedlot location shown on a map of the drinking water-supply management area
- a copy of the vulnerability assessment of the drinking water-supply management area

- description of the vulnerability of sites where the proposed manure storage area is to be built and where manure will be land applied
- a copy of all parts of the drinking water-supply management area plan which pertain to animal feedlots, manure storage areas, and land application of manure

Setbacks from community, school and child care center wells

Increased setbacks for new feedlots and manure storage areas (including stockpile sites) are required around certain types of public wells, including wells that serve a community, a public or private school (excluding home school sites), or a licensed child-care center. A community water-supply well serves 15 or more service connections used by year-round residents or at least 25 year-round

residents (e.g. municipalities, subdivisions, and nursing homes).

The required setback distance near these types of public wells depends on the information contained in the wellhead protection plan for that well. Setbacks required for construction of new feedlots or manure storage areas near wells serving community water supplies, public or private schools, and licensed child-care centers are described below and summarized in Table 3 and Figure 2 (Minn. R. 7020.2005, subp. 1).

The MPCA has studied ground water quality around many feedlots and manure storage areas. A report entitled "Effects of Liquid Manure Storage Systems on Ground Water Quality" may be found at the MPCA Web site at www.pca.state.mn.us/water/groundwater/gwmap/index.html.

Table 3. Setbacks from community, school or child care center wells (in feet)

	New feedlot	New manure storage area at existing feedlot	Expanded animal holding area (without new storage) at an existing facility
No wellhead protection plan	1,000	1,000	Same as for all other wells (See Table 2)
Feedlot in DWSMA* with a vulnerable well	1,000	1,000	Same as for all other wells (See Table 2)
Feedlot outside a DWSMA* with a vulnerable well	200	200	Same as for all other wells (See Table 2)
Feedlot in or near a DWSMA* with non-vulnerable well	Same as for all other wells (See Table 2)	Same as for all other wells (See Table 2)	Same as for all other wells (See Table 2)

*Drinking Water Supply Management Area

No wellhead protection plan: If the MDH has not yet approved a drinking water-supply management area for the well, then a 1,000-foot setback applies for new feedlot or manure storage area construction.

Approved wellhead protection plan: If the MDH has approved a drinking water-supply management area for the well, the following setbacks apply:

Vulnerable

- 1,000-foot setback: Site is in drinking water-supply management area and the land/well is designated as vulnerable.
- 200-foot setback: Site is outside of designated drinking water-supply management area.

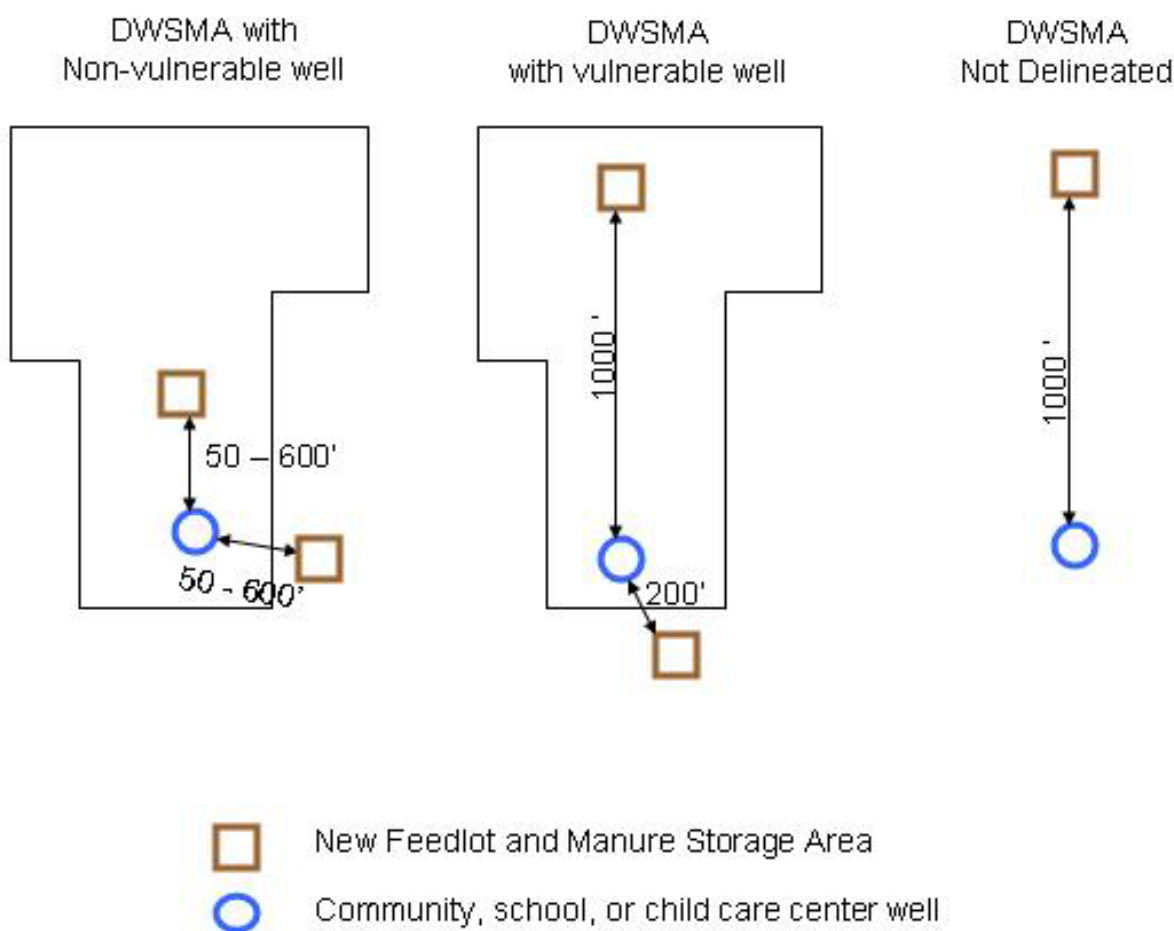
Non-vulnerable

- 50 to 600-foot setback: Site is in drinking water-supply management area and land/well is **not** designated as vulnerable. Use same setback requirements as for all other wells.

Setbacks from other public wells

Other public wells that are not considered community, school or child care center wells, must meet the well setback requirements for all water-supply wells previously described (50-foot or 100-foot for animal holding areas and 100-foot or 600-foot for manure storage areas).

Figure 2. Feedlot setbacks from community, school and child care center wells



Setbacks from buildings and property boundaries

Minn. R. ch. 7020 do not require specific setbacks from residential dwellings, commercial offices, municipalities, roads, churches, schools, parks or other such buildings or facilities. Many local land-use ordinances have incorporated feedlot setbacks from these types of structures.

State rules do, however, include a neighbor notification requirement for facilities with 500 or more animal units or those expanding to 500 or more animal units. The owner of an animal feedlot must notify neighbors within 5,000 feet of proposed construction or expansion activities through personal conversation, letter, or publication in a local newspaper. The notification must be completed within ten days of submitting a permit application to the MPCA or delegated county.

The state has also set ambient air quality standards for hydrogen sulfide emissions (Minn. R. 7009.0080), which can affect the distance a feedlot or manure storage facility may be placed to property boundaries. The state ambient hydrogen sulfide air quality standards apply at the property boundary of a facility or where the public has access to the property. The Minnesota Legislature has provided an exemption from the state ambient hydrogen sulfide air quality standards during the removal and hauling of manure from livestock production facilities (Minn. Stat. § 116.0713 paragraph (b) and (c)).

In order to obtain an exemption from state ambient hydrogen sulfide air quality standards, the producer must notify the MPCA or the county and must include the proposed dates of hauling, location, name of facility and permit number if applicable. After notification, livestock production facilities are exempt from state ambient air quality standards while manure is being removed and for seven days after manure is removed from barns or manure storage facilities. For a livestock production facility having greater than 300 animal units, the maximum cumulative exemption in a calendar year is 21 days for the removal process.

Sinkholes and other Karst features

Additional setbacks and standards pertaining to the Karst region of southeastern Minnesota are described in a publication entitled "Siting manure storage areas in Minnesota's Karst region: state requirements" found at the Web site www.pca.state.mn.us/hot/feedlots.html. Please refer to that document for feedlot construction activities in the following counties: Dakota, Dodge,

Fillmore, Freeborn, Goodhue, Houston, Mower, Olmsted, Pine, Rice, Wabasha, Washington, and Winona, or portions of other counties underlain by less than 50 feet of sediment above carbonate bedrock.

You may also contact the MPCA office in Rochester at 507-285-7343 for more information about Karst related restrictions.

Manure spreading sites

On all land in Minnesota, maximum manure application rates are limited by crop-available nitrogen applied to the soil. In addition, phosphorus-based rate requirements must also be considered in certain areas. When locating a new feedlot or manure storage area, consider the availability of acres for manure spreading and the pre-existing levels of soil phosphorus. For more information on manure spreading requirements, see "Land Application of Manure: Minimum State Requirements" found on-line at www.pca.state.mn.us/hot/feedlots.html.

Environmental assessment worksheets

Feedlot capacity thresholds triggering the need for an Environmental Assessment Worksheet (EAW) are lower in shoreland and vulnerable DWSMAs, as follows:

A mandatory EAW must be completed if a new feedlot with 500 or more animal units is proposed to be constructed in shoreland or a vulnerable DWSMA, or if a feedlot proposes to expand by more than 500 animal units in such areas (an exception to this is land along the Red River that is more than 1,000 feet from the river).

Other situations triggering EAWs are described in Minn. R. ch. 4410.

Additional information

For more information, call your area offices listed on the first page of this fact sheet and ask for the feedlot specialist or visit the MPCA feedlot Web site at www.pca.state.mn.us/hot/feedlots.html.

You can also call the MPCA at 651-296-6300 or 800-657-3864.