

CHAPTER 4.06. AQUIFER PROTECTION.**Aquifer Protection Overlay District.****Section 4.06.01. Purpose:**

1. The Brookings County Planning Commission and Board of County Commissioners recognize (1) that residents of Brookings County rely exclusively on ground water for a safe drinking water supply and (2) that certain land uses in Brookings County can contaminate ground water particularly in shallow/surficial aquifers.
2. The purpose of the Aquifer Protection Overlay District is to protect public health and safety by minimizing contamination of the shallow/surficial aquifers of Brookings County. It is the intent to accomplish this, as much as possible, by public education and securing public cooperation.
3. Appropriate land use regulations will be imposed, however, which are in addition to those imposed in the underlying zoning districts or in other county regulations. It is not the intent to grandfather in existing land uses which pose a serious threat to public health through potential contamination of public water supply well head areas.

Section 4.06.02. Definitions.

1. Aquifer. A geologic formation, group of formations or part of a formation capable of storing and yielding ground water to wells or springs.
2. Best Management Practices (BMP). Means schedules of activities, prohibitions of practice, maintenance procedures, and other management practices to prevent or reduce the pollution of waters of the state. BMP's also include treatment requirements, operating procedures, and practices to control site runoff, spillage or leaks, sludge, manure disposal, manure application, waste or manure stockpiles, or drainage from raw material storage.
3. Buffer Zone. An area outside and adjacent to Zone A that has been delineated to account for possible changes in the boundaries of Zone A due to effects of irrigation pumping.
4. Chemigation. The process of applying agricultural chemicals (fertilizer or pesticides) using an irrigation system by injecting the chemicals into the water.
5. Class V Injection Well. A conduit through which potentially contaminated but generally non-hazardous fluids can move from the land surface to the subsurface; the types of primary concern are (1) commercial/industrial facility septic tanks when they are used to dispose of more than domestic wastewater and (2) dry wells for repair/service bay drains at facilities servicing motorized vehicles/ equipment.
6. Concentrated Animal Feeding Operation See Chapter 5.22
7. Contamination. The process of making impure, unclean, inferior, or unfit for use by introduction of undesirable elements.

AQUIFER PROTECTION

8. Contingency Plans. Detailed plans for control, re-containment, recovery and clean up of hazardous materials released during fires, equipment failures, leaks and spills or other similar events.
9. Corner Lot is a lot with two front yards.
10. Development. The carrying out of any construction, reconstruction, alteration of surface or structure or change of land use or intensity of use.
11. Facility. Something that is built, installed or established for a particular purpose.
12. Grey Water. All domestic wastewater except toilet discharge water.
13. Hazardous Materials. A material which is defined in one or more of the following categories.
 - a. Ignitable: A gas, liquid or solid which may cause fires through friction, absorption of moisture or which has low flash points. Examples: white phosphorous and gasoline.
 - b. Carcinogenic: A gas, liquid or solid which is normally considered to be cancer causing or mutagenic. Examples: Polychlorinated Biphenyls (PCBs) in some waste oils.
 - c. Explosive: A reactive gas, liquid or solid which will vigorously and energetically react uncontrollably if exposed to heat, shock, pressure or combinations thereof. Examples: dynamite, organic peroxides and ammonium nitrate.
 - d. Highly Toxic: A gas, liquid or solid so dangerous to man as to afford an unusual hazard to life. Examples: parathion and chlorine gas.
 - e. Moderately Toxic: A gas, liquid or solid, which through repeated exposure or in a single large dose can be hazardous to man. Example: atrazine.
 - f. Corrosive: Any material, whether acid or alkaline, which will cause severe damage to human tissue, or in case of leakage might damage or destroy other containers of hazardous materials and cause the release of their contents. Examples: battery acid and phosphoric acid.
14. Manure Storage Area. An area for the containment of animal manure in excess of 8,000 pounds or 1,000 gallons.
15. Leaks and Spills. Any unplanned or improper discharge of a potential contaminant including any discharge of a hazardous material.
16. Pasture. A field that provides continuous forage to animals without depletion of forage matter.
17. Primary Containment Facility. A tank, pit, container, pipe or vessel of first containment of a liquid or chemical.

18. Secondary Containment Facility. A second tank, catchments pit, pipe or vessel that limits and contains liquid or chemical leaking or leaching from a primary containment area. Monitoring and recovery are required.
19. Shallow/Surficial Aquifer. An aquifer in which the permeable media (sand and gravel) starts at the land surface or immediately below the soil profile. The main shallow/surficial aquifer in Brookings County is the Big Sioux Aquifer.
20. Ten Year Time of Travel Distance. The distance that ground water will travel in ten years. This distance is a function of the permeability and slope of the aquifer.
21. Zone of Contribution. The entire area around a well or well field that is recharging or contributing water to the well or well field.
22. Zoning Complaints. All zoning complaints must be in writing and signed.

Section 4.06.03. Establishment and Delineation of Aquifer Protection Overlay Zones.

1. Boundaries for the aquifer protection zones for the Aquifer Protection Overlay District are shown on published maps entitled "Well head Protection Area Maps, Brookings County Shallow Aquifer Map" dated May, 1988, with pages 5 and 9 amended in January of 1999, as drawn by Banner Associates. Said maps are hereby adopted by reference as part of this ordinance as if the maps were fully described herein. In addition to the before mentioned maps the South Dakota Department of Environment and Natural Resources, Division of Financial and Technical Assistance, Geological Survey Aquifer Materials Map 19 dated 2004, for areas designated 0-50 feet on map, will be used to further identify aquifer boundaries. In the event of a conflict between such maps as to the area covered by the aquifer at a given location, then the map showing the larger aquifer area shall be followed. (Ord. 2006-02, 3-28-2006).
2. The shallow/surficial aquifer boundary was mapped using data from the South Dakota Geological Survey and United States Geological Survey. This map only serves as a general guide to the location of these aquifers. County studies and other information shall be used, where available, to better determine more precise aquifer locations. Aquifer boundaries are drawn at the discretion of geologists and hydrologists based on best available information. Therefore, actual site specific aquifer boundaries may differ from the attached map and other information. Hydrogeologic information is necessary to verify the location of a concentrated animal feeding operation in relation to an underlying shallow aquifer.

Section 4.06.04. Zone A - Aquifer Critical Impact Zone.

Zone A, the well head protection area, is the zone of contribution mapped around all public water supply wells or well fields and includes land upgradient to the ten year time of travel boundary plus contributing drainage areas, as delineated on the official copy of published maps representing sloping, adjacent lands not underlain by the aquifer from which surface water can flow directly onto Zone A.

Section 4.06.04.01. Permitted uses in Zone A:

The following uses are permitted provided they meet appropriate performance standards outlined for aquifer protection overlay zones:

1. Agriculture;
 - a. Application of manure is permitted with an approved nutrient management plan.
2. Horticulture.
3. Park, greenways or publicly owned recreational areas.
4. Necessary public utilities/facilities designed so as to prevent contamination of ground water.
5. Best Management Practices are encouraged, particularly in Zone A.

Section 4.06.04.02. Conditional Uses in Zone A:

The following uses are permitted only under the terms of a Conditional Use and must conform to provisions of the underlying zoning district and meet the Performance Standards outlined for the Aquifer Protection Overlay Zones.

1. Expansion of existing conforming and non-conforming uses to the extent allowed by the underlying district. The County Zoning Commission shall not grant approval unless it finds such expansion does not pose greater potential contamination to ground water than the existing use.
2. Sediment basins will be allowed on a case-by-case basis and must be constructed to current NRCS standards and specifications.
3. Expansion of existing Class "D" Concentrated Animal Feeding Operations (CAFOs) to 499 animal units, that were in continuous existence at the time of adoption of Brookings County Zoning Ordinance May 1976.

Section 4.06.04.03. Prohibited Uses in Zone A:

The following uses are expressly prohibited in Zone A:

1. New Class A, B, C and D Concentrated Animal Feeding Operations after adoption of this ordinance, May, 1976
2. Existing Concentrated Animal Feeding Operations in continuous operation since the adoption of the Brookings County Zoning Ordinance May, 1976 will not be able to expand beyond a total of 500 animal units (Class D).
3. Earthen storage basins and lagoons.
4. Disposal of or stockpiling of solid waste.

5. Post-harvest application of nitrogen fertilizer prior to October 15th except for the spreading of manure.
6. Storage of road salt or disposal of snow containing deicing chemicals.
7. Processing and storage of Polychlorinated Biphenyls (PCB) containing oils;
8. Car washes;
9. Auto service, repair or painting facilities and junk or salvage yards;
10. Disposal of radioactive waste;
11. Graveyards or animal burial sites;
12. Open burning and detonation sites;
13. All other facilities involving the collection, handling, manufacture, use storage, transfer or disposal of any solid or liquid material or waste having a potentially harmful impact on ground water quality;
14. Land spreading or dumping of petroleum-contaminated soil, waste oil or industrial wastes.
15. Class V injection wells.
16. All uses not permitted or not permitted as Conditional Uses in Zone A.
17. Transmission facilities designated to transport liquid hydrocarbons or liquid hydrocarbon products.

Section 4.06.05. Zone B - Aquifer Secondary Impact Zones.

Zone B is established as the remainder of the mapped shallow/ surficial aquifer not included in Zone A.

This portion of the aquifer is being protected because (1) it is a valuable natural resource for future development, (2) it provides drinking water supply for individual households, (3) contamination is not justified, even though this area is not a public water supply wellhead and (4) contaminants could eventually reach Zone A.

Section 4.06.05.01. Permitted Uses in Zone B:

1. All uses permitted in the underlying zoning districts provided that they can meet the Performance standards as outlined for the Aquifer Protection Overlay Zones.
2. Best Management Practices are encouraged, particularly in Zone B.

Section 4.06.05.02. Conditional Uses in Zone B:

1. New Class D and accumulative expansion of 250 animal units of existing Class C and D CAFO's in continuous operation since the adoption of Brookings County Zoning Ordinance on May 1976 not to exceed 750 total animal units. (Class C).
2. Sediment basins will be allowed on a case-by-case basis and must be constructed to current NRCS standards and specifications.
3. All Conditional Uses allowed in underlying districts may be approved by the County Zoning Commission provided they can meet Performance Standards outlined for the Aquifer Protection Overlay Zones.

Section 4.06.05.03. Prohibited Use in Zone B:

The following use is expressly prohibited in Zone B:

1. New and expansion of Class A, B and C Concentrated Animal Feeding Operations.
2. Earthen storage basins and lagoons.
3. Post-harvest application of nitrogen fertilizer prior to October 15th except for the spreading of manure.
4. Land spreading or dumping of petroleum-contaminated soil, waste oil or industrial wastes.
5. Class V injection wells.
6. Transmission facilities designated to transport liquid hydrocarbons or liquid hydrocarbon products.

Section 4.06.06. Performance Standards:

The following standards shall apply to land uses in Zones A and B of the Aquifer Protection Overlay Districts:

1. New or replacement septic tanks and associated drain fields for containment of human or animal wastes must conform with regulations established by the State Department of Environment and Natural Resources.
2. Any facility involving the collection, handling, manufacture, use, storage, transfer or disposal of any solid or liquid material or wastes, except for spreading of manure, in excess of 1000 pounds and/or 100 gallons which has the potential to contaminate ground water must have a secondary containment system which are easily inspected and whose purpose is to intercept any leak or discharge from the primary containment vessel or structure. Underground tanks or buried pipes carrying such materials must have double walls and inspectable sumps. Pipes installed to carry diluted chemicals for chemigation are exempted and storage of liquid fertilizer for chemigation is allowed as long as a secondary containment system is used. Secondary containment for tanks used for chemigation must be in place by April 1, 1991.

AQUIFER PROTECTION

3. Open liquid waste ponds containing materials referred to in (2) above will not be permitted without a secondary containment system except for community wastewater lagoons. Agricultural waste storage ponds are permitted but must be constructed in conformance with Natural Resource Conservation Service South Dakota Engineering Standard, Waste Storage Ponds 425. (See Appendix 1).
4. Storage of petroleum products in quantities exceeding fifty-five (55) gallons at one locality in one tank or series of tanks must be in elevated tanks; such tanks must have a secondary containment system noted in (2) above where it is deemed necessary by the County Zoning office.
5. Discharge of industrial process water on site is prohibited without County Zoning office approval. County approval contingent on state permit from South Dakota Department Environment and Natural Resources.
6. Auto service, repair or painting facilities and junk or salvage yards in Zone B shall meet all State and Federal standards for storage, handling and disposal of petroleum products and shall properly dispose of all other potentially hazardous waste materials.
7. An acceptable contingency plan for all permitted facilities must be prepared and on file in the County Zoning Office for preventing hazardous materials from contaminating the shallow/surficial aquifer should floods, fire and other natural catastrophes or equipment failure occur:
 - a. For flood control, all underground facilities shall include but not be limited to a monitoring system and secondary standpipe above the 100-year flood control level, for monitoring and recovery. For above ground facilities, an impervious dike, above the 100 year flood level and capable of containing 100 percent of the largest volume of storage, will be provided with an overflow recovery catchments area (sump).
 - b. For fire control, plans shall include but not be limited to a safe firefighting procedure, a fire retardant system and provide for dealing safely with both health and technical hazards that may be encountered by disaster control personnel in combating fire. Hazards to be considered are overhead and buried electrical lines, pipes, other buried objects and other hazardous liquids, chemicals or open flames in the immediate vicinity.
 - c. For equipment failures, plans shall include but not be limited to:

Below ground level, removal and replacement of leaking parts, a leak detection system with monitoring and an overfill protection system. Above ground level, liquid and leaching monitoring of primary containment systems, their replacement or repair and cleanup and/or repair of the impervious surface.
 - d. For any other natural or man-caused disasters occurring, the owner and/or operator shall report all incidents involving liquid or chemical material in an endangerment of the health and /or safety of either disaster personnel and/or the public in general.

Agricultural operations are exempted from this section unless they store chemicals that are on the Superfund Amendments and Reauthorization Act of 1986 (SARA Title III) extremely hazardous substance list over the threshold planning quantity at any one time. (See Appendix 3)

The County Zoning Office, DENR and public water supply officials shall be informed within 24 hours of all leaks and spills of materials that might potentially contaminate ground water.

8. Since it is known that improperly abandoned wells can become a direct conduit for contamination of ground water by surface water, all abandoned wells should be plugged in conformance with South Dakota Well Construction Standards, Chapter 74:02:04:67-70.

Section 4.06.07. Grant of Permit, Alteration of Use.

A permit will be granted when the County Zoning officer has examined the application and determined that the proposed use, activity or development meets the performance standards.

In securing a use permit, the owner/developer must make future improvements which may become necessary to prevent contamination of shallow/surficial aquifers and the owner/developer must allow County personnel to inspect any improvements to verify they meet the performance standards.

Whenever any person has obtained a permit and thereafter desires alteration of the authorized use, such persons shall apply for a new permit. The owner may appeal a County Zoning officer's decision to modify or deny a requested permit to the County Planning Commission/County Zoning Commission.

Section 4.06.08. Exceptions.

1. Any lawful use in existence on the effective date of this ordinance shall be permitted to continue provided it can be shown such use does not threaten public health and safety by potential contamination of water in the shallow/surficial aquifers. Any proposed additions, changes or improvements will require a permit.
2. Storage of liquids and chemicals used in agricultural operations during spring/fall planting and crop cultivation are exempt from the requirements of this ordinance April 1 to October 1. Tanks used for chemigation are not exempt. Best Management Practices are encouraged, particularly in Zone A.
3. Storage of liquid or dry fertilizer in amounts equal to or less than 1,000 pounds or 100 gallons, stored indoors by each farm operator is exempt from the requirements of this ordinance.

Section 4.06.09. Limitation of County Liability.

Nothing in this ordinance shall be construed to imply that Brookings County, by issuing a permit, has accepted any of an owner/developer's liability if a permitted development contaminates water in shallow/surficial aquifers.

Section 4.06.10. Underlying Zones.

Underlying zoning restrictions apply along with restrictions set forth in the Aquifer Protection Overlay District.

Section 4.06.11. Saving Clause.

Should any section provision of this ordinance be declared invalid, such decision shall not affect the validity of the ordinance as a whole or any other part thereof.