Chapter 16.55 CRITICAL AQUIFER RECHARGE AREAS

16.55.010 Purpose

The purpose of this chapter is to protect the public health and welfare by safeguarding critical aquifer recharge areas (CARA) and vital groundwater resources which provide drinking water. This chapter balances protection of groundwater resources with reasonable use of property by establishing performance standards, best management practices, and review procedures for development activities within CARAs.

16.55.~~010~~ 020 Critical aquifer recharge areas designation.

A. Critical aquifer recharge areas (CARA) are those areas with a critical recharging effect on aquifers used for potable water as defined by WAC 365-190-030(2). CARA have prevailing geologic conditions associated with infiltration rates that create a high potential for contamination of ground water resources or contribute significantly to the replenishment of ground water. These areas include the following:

~~A~~1. Wellhead Protection Areas. Wellhead protection areas shall be defined by the boundaries of the ten-year time of ground water travel, or boundaries established using alternate criteria approved by the Department of Health in those settings where ground water time of travel is not a reasonable delineation criterion, in accordance with WAC 246-290-135.

~~B~~2. Sole Source Aquifers. Sole source aquifers are areas that have been designated by the U.S. Environmental Protection Agency pursuant to the Federal Safe Drinking Water Act.

~~C~~3. Susceptible Ground Water Management Areas. Susceptible ground water management areas are areas that have been designated as moderately or highly vulnerable or susceptible in an adopted ground water management program developed pursuant to Chapter 173-100 WAC.

~~D~~4. Special Protection Areas. Special protection areas are those areas defined by WAC 173-200-090.

~~E~~5. Moderately or Highly Vulnerable Aquifer Recharge Areas. Aquifer recharge areas that are moderately or highly vulnerable to degradation or depletion because of hydrogeologic characteristics are those areas delineated by a hydrogeologic study prepared in accordance with the state Department of Ecology guidelines.

~~F~~6. Moderately or Highly Susceptible Aquifer Recharge Areas. Aquifer recharge areas moderately or highly susceptible to degradation or depletion because of hydrogeologic characteristics are those areas meeting the criteria established by the state Department of Ecology.

7. Areas underlain by the unconsolidated alluvial sand and gravel aquifer along the Columbia River, as identified in the United States Geological Survey (USGS) Geology and Ground-water Conditions of Clark County, Water Supply Paper 1600.

B. The city adopts the following maps showing the approximate location and extent of critical aquifer recharge areas. These maps are to be used as a guide for the city, project applicants, and/or property owners, and may be continuously updated as new critical areas are identified. They are a reference and do not provide a final critical area designation.

1. Wellhead Protection Areas (WHPAs): the Washington State Department of Health Source Water Assessment Program (SWAP) Map for areas located within the 10-year or less time of travel;

2. The United States Environmental Protection Agency Map of Sole Source Aquifer Locations; and

3. The United States Geological Survey (USGS) Geology and Ground-water Conditions of Clark County, Geologic Map of Western part of Clark County, Washington.

(Ord. 2517 § 1 (Exh. A (part)), 2008)

16.55.~~020~~ 030 Aquifer recharge area susceptibility ratings.

Aquifer recharge areas shall be rated as having high, moderate, or low susceptibility based on soil permeability, geologic matrix, infiltration, and depth to water as determined by the criteria established by the state Department of Ecology.

(Ord. 2517 § 1 (Exh. A (part)), 2008)

~~16.55.030 Mapping of critical aquifer recharge areas.~~

~~A. The approximate location and extent of critical aquifer recharge areas are shown on the adopted critical area maps.~~

~~B. These maps are to be used as a guide for the city, project applicants, and/or property owners, and may be continuously updated as new critical areas are identified. They are a reference and do not provide a final critical area designation.~~

~~(Ord. 2517 § 1 (Exh. A (part)), 2008)~~

16.55.040 Exempt, prohibited, and permitted activities in ~~Activities allowed in~~ critical aquifer recharge areas.

A. The following activities are allowed in critical aquifer recharge areas ~~in addition to those pursuant to allowed activities (Section 16.51.120), and do not require submission of a critical area report:~~and are exempt from the standards of this chapter:

~~A~~1. Construction of structures and improvements, including additions, resulting in less than five percent or two thousand five hundred square feet (whichever is greater) total site impervious surface area that do not result in a change of use or increase the use of a hazardous substance.

~~B~~2. Development and improvement of parks, recreation facilities, open space, or conservation areas resulting in less than five percent total site impervious surface area and that does not increase the use of a hazardous substance.

~~C. Development within CARA's shall not result in the loss of more than forty percent of the total pervious surface of the site.~~

3. All residential uses and activities, provided that any residential use of pesticides and nutrients comply with Section 16.55.070(C).

4. Other uses not listed as prohibited or permitted uses in subsections B and C below.

B. The following activities and uses are prohibited in critical aquifer recharge areas:

1. Landfills. Landfills, including hazardous or dangerous waste, municipal solid waste, special waste, wood waste, and inert and demolition waste landfills;

2. Underground Injection Wells.

3. Surface mining operations.

A. Metals and hard rock mining, and

B. Sand and gravel mining;

4. Wood Treatment Facilities. Wood treatment facilities that allow any portion of the treatment process to occur over permeable surfaces (both natural and man-made);

5. Storage, Processing, or Disposal of Radioactive Substances. Facilities that store, process, or dispose of radioactive substances;

6. Agricultural drainage wells;

7. Cesspools;

8. Industrial process water and disposal wells;

9. Other.

A. Activities that would significantly reduce the recharge to aquifers currently or potentially used as a potable water source,

B. Activities that would significantly reduce the recharge to aquifers that are a source of significant baseflow to a regulated stream, and

C. Activities that are not connected to an available sanitary sewer system are prohibited from critical aquifer recharge areas associated with sole source aquifers.

C. The following activities are allowed in critical aquifer recharge areas subject to critical areas review and approval:

1. Above- and below-ground storage tanks;

2. Facilities that conduct biological research;

3. Boat repair shops;

4. Chemical research facilities;

5. Dry cleaners;

6. Fuel and/or gasoline stations;

7. Pipelines;

8. Printing and publishing shops (that use printing liquids);

9. Below-ground transformers and capacitors;

10. Sawmills (producing over ten thousand board feet per day);

11. Solid waste handling and processing;

12. Vehicle repair, recycling, and auto wrecking;

13. Funeral services;

14. Furniture stripping;

15. Motor vehicle service garages (both private and government);

16. Photographic processing;

17. Chemical manufacture and reprocessing;

18. Creosote and asphalt manufacture and treatment;

19. Electroplating activities;

20. Petroleum and petroleum products refining, including reprocessing;

21. Wood products preserving;

22. Golf course;

23. Regulated waste treatment, storage, and disposal facilities that handle hazardous material;

24. Medium quantity generators (dangerous, acutely hazardous, and toxic extremely hazardous waste); and

25. Large quantity generators (dangerous, acutely hazardous, and toxic extremely hazardous waste)

(Ord. 2517 § 1 (Exh. A (part)), 2008)

16.55.050 Critical area report—Requirements for permitted activities in critical aquifer recharge areas.

A. Prepared by a Qualified Professional. ~~An aquifer recharge area~~A CARA critical area report shall be prepared by a qualified professional who is a hydrogeologist, geologist, or engineer, who is licensed in the state of Washington, and has experience in preparing hydrogeologic assessments.

B. Hydrogeologic Assessment Required. For all ~~proposed~~ permitted activities to be located in a critical aquifer recharge area, a critical area report shall contain a level one or level two hydrogeological assessment. A Level ~~One~~ Two hydrogeologic assessment shall be required for any of the following proposed activities:

~~1. Activities that result in five percent or more, or two thousand five hundred square feet of impervious site area;~~

~~2. Activities that divert, alter, or reduce the flow of surface or ground waters, or otherwise reduce the recharging of the aquifer;~~

~~3. The use of hazardous substances, other than household chemicals used according to the directions specified on the packaging for domestic applications;~~

~~4. The use of injection wells; or~~

~~5. Any other activity determined by the director likely to have an adverse impact on ground water quality or quantity, or on the recharge of the aquifer.~~

1. Any use in a designated wellhead protection area or the unconsolidated sand and gravel aquifer pursuant to 16.55.020(A)(7);

2. Chemical manufacture and reprocessing;

3. Creosote and asphalt manufacture and treatment;

4. Petroleum and petroleum products refining, including reprocessing;

5. Pipelines;

6. Regulated waste treatment, storage, and disposal facilities that handle hazardous material;

7. To establish that a use or activity is located outside of a CARA, or in a different classification, although mapped within it according to available sources;

8. For any uses which deviate from minimum performance standards specific to the use as described in CMC 16.55.060; or

9. Any other activity determined by the director likely to have an adverse impact on ground water quality or quantity, or on the recharge of the aquifer.

C. Level One Hydrogeologic Assessment. A Level One hydrogeologic assessment shall include the following ~~site and proposal related information at a minimum~~:

~~1. Available information regarding geologic and hydrogeologic characteristics of the site, including the surface location of all critical aquifer recharge areas located on site or immediately adjacent to the site, and permeability of the unsaturated zone;~~

~~2. Ground water depth, flow direction and gradient based on available information;~~

~~3. Currently available data on wells and springs within one thousand three hundred feet of the project area;~~

~~4. Location of other critical areas, including surface waters, within one thousand three hundred feet of the project area;~~

~~5. Available historic water quality data for the area to be affected by the proposed activity; and~~

~~6. Best management practices proposed to be utilized.~~

1. A description of the site, including location and existing and proposed land use;

2. A summary of the local hydrogeologic setting, including soil types, depth to groundwater, and aquifer type (confined or unconfined);

3. Identification of known wells, water supply sources, and any documented contamination sites located on or near the site;

4. A description of potential contaminant sources and estimated volumes associated with the proposed use;

5. A description of proposed best management practices (BMPs) related to stormwater management, chemical storage and handling, and spill containment;

6. A description of how the proposal meets or exceeds any performance standards specific to the use as described in Section 16.55.06; and

7. A justification demonstrating that a Level One hydrogeologic assessment provides adequate protection of groundwater resources given the nature and scale of the proposed activity.

D. Level Two Hydrogeologic Assessment. A Level Two hydrogeologic assessment shall include the following ~~site and proposal related information at a minimum~~, in addition to the requirements for a Level One hydrogeological assessment:

~~1. Historic water quality data for the area to be affected by the proposed activity compiled for at least the previous five year period;~~

~~2. Ground water monitoring plan provisions;~~

~~3. Discussion of the effects of the proposed project on the ground water quality and quantity, including:~~

~~a. Predictive evaluation of ground water withdrawal effects; and~~

~~b. Predictive evaluation of contaminant transport based on potential releases to ground water; and~~

~~4. A spill plan that identifies equipment and/or structures that could fail, resulting in an impact. Spill plans shall include provisions for regular inspection, repair, and replacement of structures and equipment that could fail.~~

~~-~~1. A site-specific, technically defensible hydrogeologic analysis demonstrating that the proposed activity will not contaminate or otherwise adversely affect the underlying aquifer.

2. A detailed geologic and hydrogeologic characterization of the site;

3. Determination of groundwater flow direction and gradients;

4. Identification and characterization of aquifer properties, including transmissivity and permeability;

5. A fate and transport analysis for potential contaminants associated with the proposed use;

6. Modeling or calculations of potential contaminant travel time to the nearest receptor or downgradient boundary;

7. An assessment of any cumulative impacts; and

8. A monitoring and/or mitigation plan, if necessary, to ensure protection of groundwater quality and aquifer recharge functions.

(Ord. 2517 § 1 (Exh. A (part)), 2008)

16.55.060 Performance standards—General requirements.

A. Activities may only be permitted in a critical aquifer recharge area if the applicant can show that the proposed activity will not cause contaminants to enter the aquifer, and that the proposed activity will not adversely effect the recharging of the aquifer.

B. The critical areas report shall identify and demonstrate that measures will be taken to prevent aquifer contamination from vehicular repair, residential use of pesticides and nutrients, spreading or injection of reclaimed water, and storage tanks.

C. The proposed activity must comply with the water source protection requirements and recommendations of the Federal Environmental Protection Agency, State Department of Health, and the local health district.

D. The proposed activity must be designed and constructed in accordance with the city of Camas Design Standards Manual.

(Ord. 2517 § 1 (Exh. A (part)), 2008)

16.55.070 Performance standards—Specific uses.

A. Storage Tanks. All storage tanks proposed to be located in a critical aquifer recharge area must comply with local building and fire code requirements, with Chapters 173-303 WAC and 173-360 WAC, and must conform to the following requirements:

1. Underground Tanks. All new underground storage facilities proposed for use shall be designed and constructed so as to:

a. Prevent releases to the ground, ground water, and surface water due to corrosion or structural failure, or seismic activity for the operational life of the tank;

b. Be protected against corrosion, constructed of noncorrosive material, or steel clad with a noncorrosive material, or designed to include a secondary containment system to prevent the release or threatened release of any stored substances; ~~and~~

c. Use material in the construction or lining of the tank that is compatible with the substance to be stored; ~~.~~

d. Prevent releases to the ground, ground water, and surface water due to spillage or overfilling. The opening for filling the tank shall be surrounded with impermeable material designed and sized to prevent spilled hazardous material from reaching the soil, groundwater, or surface water;

e. Provide a secondary containment system to protect against spills from the storage vessel and any associated piping and transfer equipment; and

f. Provide for leak detection.

2. Aboveground Tanks. All new aboveground storage facilities proposed for use in the storage of hazardous substances or hazardous wastes shall be designed and constructed so as to:

a. Not allow the release of a hazardous substance to the ground, ground waters, or surface waters;

~~b. Have a primary containment area enclosing or underlying the tank or part thereof; and~~

~~c. A secondary containment system either built into the tank structure, or a dike system built outside the tank. This applies to all tanks.~~

b. Secondary Containment. New above ground tanks and distribution systems that will contain a hazardous material shall either be double walled or have a separate, impervious secondary containment system constructed around and under the tank/distribution system. The containment system shall be covered or otherwise designed so it does not collect precipitation or stormwater runoff. Secondary containment systems shall be sized to hold at least one hundred ten percent of the largest tank's capacity and shall be designed and constructed with materials that are compatible with the substance to be stored in the tank;

c. Leak Detection. Leak detection devices shall be required for all double walled tanks and, when possible, for other tanks; and

d. Waiver. The approval authority may grant a waiver from one or more of the above requirements upon finding that the proposed above ground storage facility would not create a risk to ground water quality.

B. No Dry Wells Shall be Allowed in Critical Aquifer Recharge Areas. Dry wells existing on the site prior to facility establishment must be abandoned using techniques approved by the state Department of Ecology prior to commencement of the proposed activity.

C. Residential Use of Pesticides and Nutrients. Application of household pesticides, herbicides, and fertilizers shall not exceed times and rates specified on the packaging.

D. Spreading or Injection of Reclaimed Water. Water reuse projects for reclaimed water must be in accordance with the adopted water or sewer comprehensive plans that have been approved by the departments of Ecology and Health.

1. Surface spreading must meet the ground water recharge criteria given in Chapter 90.46.080 RCW and Chapter 90.46.010(9); and

2. Direct injection must be in accordance with the standards developed by authority of Chapter 90.46.042 RCW.

E. Cemeteries. Applicants for a cemetery shall submit a hydrogeological report evaluating the risk the proposed cemetery poses to groundwater and surface water. The approval authority may condition the project as necessary to protect ground water quality. The approval authority shall deny the proposed cemetery if it is determined that it would likely contaminate potable ground water supplies.

F. Agricultural, commercial and industrial uses.

1. Where floor drains are allowed, any floor drains in areas where hazardous materials are used, stored or otherwise present shall have a removable lip or barrier that will prevent spilled hazardous material from entering the drain. The approval authority may require that a sump or other device be used to ensure that hazardous material does not drain to the soil, sewage disposal system, or a water body.

2. Areas where hazardous materials are used or stored shall not drain to the soil, a stormwater system, water body, or a sewage disposal system. The approval authority may require that a sump or other device, as appropriate to address the contaminants of concern, be used to ensure protection of ground water quality.

3. All vehicle and equipment washing must be done in a self-contained area (e.g., with recycling system) designed to ensure that hazardous materials do not reach the soil, a water body or a sewage disposal system. This does not apply to discharges to a sewer that were approved by the sewer utility. Water used in wash down areas shall be treated to remove contaminants prior to discharge.

4. An integrated pest management plan shall be drafted to be consistent with the integrated pest management policies approved by the health officer. The plan shall be implemented upon approval by the department. The county may periodically verify compliance with the approved plan.

5. All new agricultural, commercial and industrial land uses that involve the use, handling, storage, disposal, or transportation of hazardous materials or dangerous/extremely dangerous wastes, as defined in Chapter 173-303 WAC, shall be required to prevent contact between the aforementioned materials and stormwater. This may not apply to materials applied in an outdoor setting as part of an approved activity's landscaping maintenance plan. This includes, but is not limited to, gas stations, fuel distributors, car/truck washes, trucking companies, asphalt plants and paint shops. The generation of hazardous materials or dangerous waste is separated into two categories:

    a. A small quantity generator can generate up to two hundred twenty pounds of dangerous waste, or up to 2.2 pounds of certain pesticides or poisons, each month. Small quantity generators can accumulate up to two thousand two hundred pounds of dangerous waste, or 2.2 pounds of certain pesticides or poisons, at their site before sending the waste off-site for proper disposal or recycling.

    b. Businesses that generate more than two hundred twenty pounds of hazardous wastes during any month must comply with the Washington State Dangerous Waste Regulations, Chapter 173-303 WAC.

6. The applicant shall demonstrate that the proposed use or activity will not cause degradation of ground water quality exceeding the standards described in Chapter 173-200 WAC (Water Quality Standards of the State of Washington) and comply with all other applicable local, state, and federal regulations.

7. The approval authority may require that the applicant install monitoring wells, to the extent necessary to determine if pollution is occurring, periodic monitoring at specified intervals, and remedial action if the monitoring reveals that ground water contamination is occurring.

8. The approval authority may require additional protective measures if necessary to protect surface and ground water quality, including, but not limited to, BMPs, devices or methods to provide a high level of nutrient removal from stormwater.

G. Dry cleaner facilities. Dry cleaner facilities shall follow best management practices and control technologies for pollution prevention as described by the Washington State Department of Ecology, the U.S. Environmental Protection Agency, or as otherwise required by state or federal law. Any new dry-cleaning operation shall be prohibited from using perchloroethylene.

H. Fuel dispensing. Sites where fuel is dispensed shall be designed to contain fuel spills on site without contaminating stormwater systems, sewage disposal systems, soil or water. This can be accomplished, for example, by installing a roof structure that shields the fueling area from precipitation and sloping the area surrounding the fuel pumps toward a sump with capacity for at least one hundred gallons of fuel or by surrounding the covered fueling area with a shallow curb that provides capacity for at least one hundred gallons of fuel. The storage capacity for the containment method may be adjusted by the approval authority, depending on the scale of the fuel dispensing facility. Compliance with the performance standards for storage tanks is also required.

I. Greenhouse/nursery. Any fertilizers shall be applied at an agronomic rate in accordance with the timing and amount of crop demand for nitrate, unless the approval authority determines that a lower rate of application is appropriate to protect surface and groundwater quality.

J. Hazardous materials.

1. Hazardous materials shall be used, handled, stored, and disposed of in accordance with the standards contained in this section, Title 15, and applicable state law (see RCW 70.105, Chapter 173-303 WAC).

2. Operators of new and existing uses and activities that involve the use, handling, storage or generation of hazardous materials exceeding thresholds specified in the International Fire Code, as amended, shall submit for review and approval a hazardous materials management plan that demonstrates that the use or activity will not have an adverse impact on ground water quality. Notwithstanding the requirements of the International Fire Code, if the approval authority determines that the proposed use or activity poses a risk to ground water, they shall require submission of a hazardous materials management plan to protect ground water quality. Approved hazardous materials management plans shall be implemented.

3. Persons that possess liquid, soluble, or leachable hazardous materials shall contain such materials and the entire distribution system in a secondary containment device or system that will effectively prevent discharge on-site. Secondary containment may be achieved in a variety of ways, including, but not limited to, use of sloping floors that provide capacity to contain spills or installation of a curb around the perimeter of the structure.

K. Metal plating. Metal plating operations shall follow best management practices and control technologies for pollution prevention as described by the Washington State Department of Ecology, the U.S. Environmental Protection Agency, or as otherwise required by state or federal law.

L. Vehicle repair and service/body shops.

1. Vehicle repair/servicing shall be performed over an impermeable surface under cover from the weather.

2. Dry wells shall not be permitted in conjunction with such uses.

3. Use and storage of hazardous materials shall be consistent with standards established in Section 16.55.070(J).

4. The approval authority shall require that new hydraulic hoists be located in a vault to ensure that any leaks from such equipment are contained.

M~~E~~. State and Federal Regulations. The uses listed below shall be conditioned as necessary to protect critical aquifer recharge areas in accordance with the applicable state and federal regulations.

Statutes, Regulations and Guidance Pertaining to Ground Water Impacting Activities

Activity	Statute—Regulation—Guidance*
Aboveground storage tanks	Chapter 173-303-640 WAC
Animal feedlots	Chapter 173-216 -240 WAC, Chapter 173-220 (NPDES) WAC
Automobile washers	Chapter 173-216 WAC, Best Management Practices for Vehicle and Equipment Discharges (WDOE WQ-R-95-56)
Below ground storage tanks	Chapter 173-360 WAC
Chemical treatment storage and disposal facilities	Chapter 173-303 WAC
Hazardous waste generator (boat repair shops, biological research facility, dry cleaners, furniture stripping, motor vehicle service garages, photographic processing, printing and publishing shops, etc.)	Chapter 173-303 WAC
Injection wells	Federal 40 CFR Parts 144 and 146, Chapter 173-218 WAC
Junk yards and salvage yards	Chapter 173-304 WAC, Best Management Practices to Prevent Stormwater Pollution at Vehicles Recycler Facilities (WDOE 94-146)
Oil and gas drilling	Chapter 332-12-450 WAC, Chapter 344-12 WAC
On-site sewage systems (large scale)	Chapter 173-240 WAC
On-site sewage systems (<14,500 gal/day)	Chapter 246-272 WAC, Local Health Ordinances
Pesticide storage and use	Chapter 15.54 RCW, Chapter 17.21 RCW
Sawmills	Chapter 173-303 WAC, 173-304 WAC, Best Management Practices to Prevent Stormwater Pollution at Log Yards (WDOE 95-53)
Solid waste handling and recycling facilities	Chapter 173-304 WAC
Surface mining	Chapter 332-18 WAC
Waste water application to land surface	Chapter 173-216 WAC, Chapter 173-200 WAC, WDOE Land Application Guidelines, Best Management Practices for Irrigated Agriculture

* as amended.

(Ord. 2517 § 1 (Exh. A (part)), 2008)

~~16.55.080 Uses prohibited from critical aquifer recharge areas.~~

~~The following activities and uses are prohibited in critical aquifer recharge areas:*~~

~~A. Landfills. Landfills, including hazardous or dangerous waste, municipal solid waste, special waste, wood waste, and inert and demolition waste landfills;~~

~~B. Underground Injection Wells. Classes I, III, and IV wells and subclasses 5F01, 5D03, 5F04, 5W09, 5W10, 5W11, 5W31, 5X13, 5X14, 5X15, 5W20, 5X28, and 5N24 of Class V wells;~~

~~C. Mining.~~

~~1. Metals and hard rock mining, and~~

~~2. Sand and gravel mining;~~

D. Wood Treatment Facilities. Wood treatment facilities that allow any portion of the treatment process to occur over permeable surfaces (both natural and man-made);

E. Storage, Processing, or Disposal of Radioactive Substances. Facilities that store, process, or dispose of radioactive substances;

F. Fuel and/or gas stations;

G. Vehicle repair and servicing;

H. Oil and lubricant centers; and

I. Other.

1. Activities that would significantly reduce the recharge to aquifers currently or potentially used as a potable water source,

2. Activities that would significantly reduce the recharge to aquifers that are a source of significant baseflow to a regulated stream,

3. Activities that are not connected to an available sanitary sewer system are prohibited from critical aquifer recharge areas associated with sole source aquifers, and

4. Underground storage tanks for the use and storage of hazardous substances or hazardous materials.

(Ord. 2517 § 1 (Exh. A (part)), 2008)

* Prohibited uses are based on "Guidance Document for the Establishment of Critical Aquifer Recharge Area Ordinances," by Ecology, July 2000, publication #97-30, and local concerns.