ARTICLE III ENVIRONMENTAL REGULATIONS

RZC 21.64 CRITICAL AREAS REGULATIONS

Introduction to Critical Areas User Guide

21.64.050 Critical Aquifer Recharge Areas

A. **Classification and Rating of Critical Aquifer Recharge Areas.** To promote consistent application of the standards and requirements of this chapter, Critical Aquifer Recharge Areas within the City of Redmond shall be rated or classified according to their characteristics, function and value, and/or their sensitivity to disturbance.

1. Critical Aquifer Recharge Areas Classification. Critical aquifer recharge areas are those areas with a critical recharging effect on aquifers used for potable water. Wellhead protection involves the management of activities that have a potential to degrade the quality of groundwater produced by a supply well. The City of Redmond is classified into ~~four wellhead protection zones~~two critical aquifer recharge areas that are based on proximity to and travel time of groundwater to the City's public water source wells, and are designated ~~using guidance from the Washington Department of Health Wellhead Protection Program pursuant to Chapter 246-290 WAC.~~ as follows:

   a. ~~Wellhead Protection Zone~~Critical Aquifer Recharge Area I ~~1 represents~~ is the land area overlying the ~~six-month time-of-travel zone~~aquifer in which it will take a maximum of five years for the groundwater to reach of any public water source well owned by the City.

   b. ~~Wellhead Protection Zone~~Critical Aquifer Recharge Area II ~~2 represents~~ is the land area ~~that overlies the one-year time-of-travel zone~~overlying the aquifer in which it will take over five years to reach ~~of~~ any public water source well owned by the City~~, excluding the land area contained within Wellhead Protection Zone 1~~.

   ~~c. Wellhead Protection Zone 3 represents the land area that overlies the five-year and 10-year time-of-travel zones of any public water source well owned by the City, excluding the land area contained within Wellhead Protection Zones 1 or 2.~~

   ~~d. Wellhead Protection Zone 4 represents all the remaining land area in the City not included in Wellhead Protection Zones 1, 2, or 3.~~

2. Classification of wellhead protection zones shallCritical Aquifer Recharge Areas shall be determined in accordance with the City's adopted Wellhead Protection ZoneCritical Aquifer Recharge Areas Map, which serves to designate Zones 1 through 4. The Committee, at its discretion, may consider the following factors:

a. Maps adopted pursuant to this chapter;

b. Application of the criteria contained in these regulations; and

c. Consideration of the technical reports submitted by qualified consultants in connection with applications subject to these regulations.

3. Relationship of Critical Aquifer Recharge Areas to Wellhead Protection Zones (WAC 246-290). The City of Redmond Water System Plan and Washington State Department of Health require public water supply wells have wellhead protection zones delineated based on the time of travel of groundwater to a public drinking water supply well. The relationship between the Wellhead Protection Zones and the Critical Aquifer Recharge Areas are as follows:

Wellhead Protection Zone	Wellhead Protection Zone Time of Travel	Critical Aquifer Recharge Areas
Sanitary Control Area	150 foot radius, no horizontal time of travel	Critical Aquifer Recharge Area I
Wellhead Protection Zone 1	6-month and 1-year horizontal time of travel	
Wellhead Protection Zone 2	5-year horizontal time of travel	
Wellhead Protection Zone 3	10-year horizontal time of travel	Critical Aquifer Recharge Area II
Area outside of Wellhead Protection Zone 3	Area outside of the 10-year time of travel that has a critical recharging effect on the aquifer.	Critical Aquifer Recharge Area II (includes all other lands providing critical recharging effect on the aquifer)

A.B. **Alteration of Critical Aquifer Recharge Areas.** Alteration of critical aquifer recharge areas may only be permitted subject to the criteria in RZC 21.64.020.D, RZC 21.64.020.E, RZC 21.64.030.C, RZC 21.64.040.B, RZC 21.64.050.B, and RZC 21.64.060.D.

~~B.~~C. **Prohibited Land Uses and Activities in ~~Wellhead Protection Zones~~Critical Aquifer Recharge Areas I and II.**

1. Land uses or activities ~~for new development or redevelopment~~ that pose a ~~significant~~ hazard to the City's groundwater resources, resulting from storing, handling, treating, using, producing, recycling, or disposing of hazardous materials or other deleterious substances, shall be prohibited in ~~Wellhead Protection Zones 1 and 2~~Critical Aquifer Recharge Area I. Legal preexisting uses may continue to operate. These land uses and activities include~~, but are not limited to~~:

a. Large on-site sewage systems, as defined in WAC Chapter 246-272A;

b. Hazardous liquid pipelines as defined in RCW Chapter 81.88 and ~;

c. Solid waste landfills;

d. Solid waste transfer stations;

e. Liquid petroleum refining, reprocessing, and storage;

f. Bulk storage facilities as defined in ~, Definitions;

~~g. The storage or distribution of gasoline treated with the additive MTBE;~~

~~h.~~g. Hazardous waste treatment, storage, and disposal facilities except those defined under permit by rule for industrial wastewater treatment processes per WAC 173-303-802(5)(c);

~~i.~~h. Chemical manufacturing, including but not limited to organic and inorganic chemicals, plastics and resins, pharmaceuticals, cleaning compounds, paints and lacquers, and agricultural chemicals;

~~j.~~i. Dry cleaning establishments using the solvent perchloroethylene;

~~k.~~j. Primary and secondary metal industries that manufacture, produce, smelt, or refine ferrous and nonferrous metals from molten materials;

~~l.~~k. Wood preserving and wood products preserving;

~~m.~~l. Mobile fleet fueling operations;

~~n.~~m. Class I, Class III, Class IV, and the following types of Class V wells: 5A7, 5F1, 5D3, 5D4, 5W9, 5W10, 5W11, 5W31, 5X13, 5X14, 5X15, 5W20, 5X28, and 5N24 as regulated under RCW Chapter 90.48 and WAC Chapters 173-200 and 173-218, as amended;

~~o.~~n. Permanent dewatering of the aquifer ~~for new projects and redevelopment~~;

o. Irrigation with graywater ~~or reclaimed water~~

p. Reclaimed or recycled water use with the exception of uses that discharge to the sanitary sewer;

q. Sand, gravel, and hard rock mining;

r. Mining of any type below the upper surface of the saturated groundwater;

s. Disposal of radioactive wastes, as defined in chapter 43.200 RCW;

t. Hydrocarbon extraction;

u. Golf courses;

v. Cemeteries;

w. Vehicle wrecking yards;

x. Vehicle towing yards that store vehicles on permeable surfaces;

y. Metal recycling facilities with outdoor storage and handling activities

2. The following are prohibited in Critical Aquifer Recharge Area II. Legal preexisting uses may continue to operate:

   a. Permanent dewatering

   b. Reclaimed or recycled water use with the exception of uses that discharge to the sanitary sewer

3. Other land uses and activities that the City determines would pose a significant groundwater hazard to the City's groundwater supply.

~~1. Wellhead Protection Zones. Development within the City of Redmond shall implement the performance standards contained in RZC 21.64.050.D below that apply to the zone in which it is located.~~

D. **~~Wellhead Protection Zone~~Critical Aquifer Recharge Areas Performance Standards.** Development or redevelopment in the Critical Aquifer Recharge Areas shall implement the following performance standards:

1. Any uses or activities locating in the ~~City of Redmond~~ Critical Aquifer Recharge Areas which involve storing, handling, treating, using, producing, recycling, or disposing of hazardous materials or other deleterious substances shall comply with the following standards that apply to the ~~zone~~ Critical Aquifer Recharge Area in which they are located. Single family ~~R~~residential uses of hazardous materials or deleterious substances are exempt from the following standards.

2. If a property is located in or straddles more than one ~~wellhead protection zone~~Critical Aquifer Recharge Area, the Director of Public Works shall determine which standards shall apply based on an assessment evaluation of the risk posed by the facility or activity. The assessment evaluation shall include, but not be limited to: (a) the location, type, and quantity of the hazardous materials or deleterious substances on the property; (b) the geographic and geologic characteristics of the site; and (c) the type and location of infiltration on the site.

3. Development or redevelopment within ~~Wellhead Protection Zones 1 or 2~~Critical Aquifer Recharge Area I and II~~, and any~~Any facility or activity ~~per RMC Chapter 13.07.100(A),~~ shall implement the following performance standards:

   a. Secondary Containment.

      i. The owner or operator of any facility or activity shall provide secondary containment for hazardous materials or other deleterious substances in aggregate quantities equal to or greater than 20 gallons liquid or 200 pounds solid or in quantities specified in the Redmond Fire Code, RMC Chapter 15.06, whichever is smaller.

      ii. All seams and cracks on Portland cement concrete pad containment or fueling/maintenance areas must be sealed with chemical resistant sealers. Inspect and repair the Portland cement concrete pad annually to ensure the functional integrity of the pad is maintained to prevent fuel and/or chemicals from reaching the ground.

      ~~i.~~iii. Facilities or activities located in Critical Aquifer Recharge Area II are exempt from secondary containment requirements in item i above for indoor storage of hazardous materials and deleterious substances. Requirements in 15.06 still apply.

      ~~ii. Hazardous materials stored in tanks that are subject to regulation by the Washington State Department of Ecology under WAC Chapter 173-360, Underground Storage Tank Regulations, are exempt from the secondary containment requirements of this section, provided that documentation is provided to demonstrate compliance with those regulations.~~

   b. ~~Vehicle~~Vehicle Fueling, vehicle and equipment maintenance facilities, and wrecked vehicle storage facilities~~, Maintenance, and Storage Areas. Fleet and automotive service station fueling, equipment maintenance, and vehicle washing areas shall have a containment system for collecting and treating all runoff from such areas and preventing release of fuels, oils, lubricants, and other automotive fluids into soil, surface water, or groundwater. Appropriate emergency response equipment and spill kits shall be kept on-site during transfer, handling, treatment, use, production, recycling, or disposal of hazardous materials or other deleterious substances.~~shall have the following to control release of hazardous materials to the soil/groundwater during operations:

         i. Underground storage tank pits and trenches for fuel piping will be contained with tertiary containment liner and tank pit observation ports shall be installed in a low point in the pit.

         ii. Fueling facility shall be staffed with Class 3 trained staff on site at all times during fueling operations.

         iii. All vehicle fueling and vehicle and equipment maintenance shall be conducted under cover on a Portland cement concrete or equivalent pad

treated with chemical resistant sealer and drain to the sanitary sewer or deadend sump.

~~iii.~~iv. All wrecked vehicles shall be stored on a Portland cement concrete pad or equivalent and drain to the storm water system with coalescing plate oil water separator or dead-end sump.

~~b.~~c. Loading and Unloading Areas. Secondary containment or equivalent best management practices, as approved by the ~~Director of Public Works~~City, shall be required at loading and unloading areas that store, handle, treat, use, produce, recycle, or dispose of hazardous materials or other deleterious substances in aggregate quantities equal to or greater than 20 gallons liquid or 200 pounds solid.

~~c.~~d. Stormwater Infiltration Systems. Design and construction of ~~new~~ stormwater infiltration systems must address site-specific risks of releases posed by all hazardous materials on-site. These risks may be mitigated by physical design means or equivalent best management practices ~~in accordance with an approved Hazardous Materials Management Plan~~. Design and construction of said stormwater infiltration systems shall also be in accordance with RMC Chapter 15.24.020. ~~and the City of Redmond Clearing, Grading and Stormwater Technical Notebook, and shall be certified for compliance with the requirements of this section by a professional engineer or engineering geologist registered in the State of Washington.~~

~~d.~~e. Well construction and operation shall comply with the standards in RMC ~~Chapter~~ 15.24.095.

~~e. Protection Standards During Construction. The following standards shall apply to construction activities occurring where construction vehicles will be refueled on-site and/or the quantity of hazardous materials that will be stored, dispensed, used, or handled on the construction site is in aggregate quantities equal to or greater than 20 gallons liquid or 200 pounds solid, exclusive of the quantity of hazardous materials contained in fuel or fluid reservoirs of construction vehicles. As part of the City's project permitting process, the City may require any or all of the following items:~~

~~i. A development agreement;~~

~~ii. Detailed monitoring and construction standards;~~

~~iii. Designation of a person on-site during operating hours who is responsible for supervising the use, storage, and handling of hazardous materials and who has appropriate knowledge and training to take mitigating actions necessary in the event of fire or spill;~~

~~iv. Hazardous material storage, dispensing, refueling areas, and use and handling areas shall be provided with secondary containment adequate to contain the maximum~~

~~release from the largest volume container of hazardous substances stored at the construction site;~~

~~v. Practices and procedures to ensure that hazardous materials left on-site when the site is unsupervised are inaccessible to the public. Locked storage sheds, locked fencing, locked fuel tanks on construction vehicles, or other techniques may be used if they will preclude access;~~

~~vi. Practices and procedures to ensure that construction vehicles and stationary equipment that are found to be leaking fuel, hydraulic fluid, and/or other hazardous materials will be removed immediately or repaired on-site immediately. The vehicle or equipment may be repaired in place, provided the leakage is completely contained;~~

~~vii. Practices and procedures to ensure that storage and dispensing of flammable and combustible liquids from tanks, containers, and tank trucks into the fuel and fluid reservoirs of construction vehicles or stationary equipment on the construction site are in accordance with the Redmond Fire Code, RMC Chapter 15.06; and~~

~~viii. Practices and procedures, and/or on-site materials adequate to ensure the immediate containment and cleanup of any release of hazardous substances stored at the construction site. On-site cleanup materials may suffice for smaller spills whereas cleanup of larger spills may require a subcontract with a qualified cleanup contractor. Releases shall immediately be contained, cleaned up, and reported if required under RMC Chapter 13.07.120. Contaminated soil, water, and other materials shall be disposed of according to state and local requirements.~~

f. Fill Materials. Fill material shall comply with the standards in RMC ~~Chapters 15.24.080 and~~ 15.24.095.

~~g.~~ Cathodic Protection Wells. Design for c~~C~~athodic protection wells shall be ~~constructed~~ submitted to the City for review and approval prior to initiation of drilling. Cathodic protection wells shall be constructed such that the following does not occur: ~~following the standards in RMC Chapter 15.24.095.~~

i. Vertical cross-connection of aquifers normally separated by confining geologic units;

ii. Migration of contaminated surface water along improperly sealed well borings or casings;

iii. Introduction of electrolytes or related solutions into the subsurface; and

~~i.~~iv. any of the above conditions caused by improperly abandoned cathodic protection wells that are no longer in use.

~~g.~~h. Underground Hydraulic Elevator Cylinders. All underground hydraulic ~~elevator pressure cylinders shall be constructed following the standards in RMC Chapter 15.24.095.~~elevator

pressure cylinders shall be encased in an outer plastic casing constructed of schedule 40 or thicker polyethylene or polyvinyl chloride (PVC) pipe or equivalent. The plastic casing shall be capped at the bottom and all joints shall be solvent or heat welded to ensure water tightness. The neck of the plastic casing shall provide a means of inspection to monitor the annulus between the pressurized hydraulic elevator cylinders and protective plastic casing. Vegetable oil shall be used for hydraulic fluid in elevator cylinders.

~~h. Best Management Practices. All development or redevelopment shall implement Best Management Practices (BMPs) for water quality and quantity, as approved by the Technical Committee, such as biofiltration swales and use of oil-water separators, BMPs appropriate to the particular use proposed, clustered development, and limited impervious surfaces.~~

~~4. Development Within Wellhead Protection Zone 3 shall implement the following performance measures:~~

~~a. Compliance with the performance standards for vehicle fueling, maintenance and storage areas; loading and unloading areas; well construction and operation; fill materials; cathodic protection wells; underground hydraulic elevator cylinders, and best management practices in subsections D.3.b, D.3.c, D,3.e, D.3.h, D,3.i, and D.3.j of this section; and~~

~~b. Development Within Wellhead Protection Zone 4 shall implement best management practices (BMPs) for water quality and quantity as approved by the Committee.~~

~~5.~~4. ~~An incremental environmental improvement to a system protective of groundwater may proceed as follows:~~Relationship of Critical Aquifer Recharge Areas to the Groundwater Protection Incentive Program for Existing Stormwater Infiltration Modifications (RMC 13.07.115):

a. Except as provided in subsection (b) below, the construction or location of ~~an incremental improvement to a system protective~~stormwater infiltration system modification to protect ~~of~~ groundwater shall not be permitted to alter, expand, or intensify any legal nonconforming use or structure in a manner that increases the degree of nonconformity. However, upon the Technical Committee's approval of ~~an incremental improvement to a~~ a modification to a stormwater infiltration system protective of groundwater, the improvement may be constructed without the property owner having to meet the following City codes:

i. The provisions of RZC 21.64 regarding critical areas buffers, if the footprint of the original system protective of groundwater is located with the same critical area buffer, and it can be demonstrated through the best available science that there will be no significant adverse impacts to the critical area and its buffer;

ii. The provisions of RZC 21.76.100.F.9.b and F.9.c requiring nonconforming structures, landscaping, and pedestrian system areas to be brought into compliance with current building, fire, or land use codes, to the extent that the requirement is triggered by the

value or design of the incremental environmental improvement to a system protective of groundwater; and

iii. The provisions of RZC 21.64.050.C.1 prohibiting the redevelopment of certain land uses and activities in ~~wellhead protection zones 1 and 2~~Critical Aquifer Recharge Areas I and II.

b. Improvements required through the groundwater protection incentive program in order to mitigate potential stormwater impacts to groundwater may alter, expand, or intensify existing legal nonconforming uses and structures in a way that increases the degree of nonconformity where the Technical Committee determines that no economically, technologically, and environmentally reasonable alternative exists that meets the requirement to protect groundwater and fulfills the operational needs of the existing development served by the ~~improvements~~stormwater infiltration system. By way of example and not by way of limitation, groundwater protection incentive program improvements may alter, expand, or intensify the degree of nonconformity of existing landscaping, parking, and covered storage structures that are legally nonconforming, as long as the requirements of this subsection are met.

5. Phase 1 Environmental Site Assessments (ESA) required. Any development or redevelopment project that disturbs 5,000 square feet or more soil in the Critical Aquifer Recharge Area shall include a Phase 1 ESA with the projects Critical Area Report.

6. Monitoring Required at High Risk Sites. Any land use in the Critical Aquifer Recharge Areas that poses a high risk of contaminating groundwater, in the opinion of the City, will be required to be equipped for long term monitoring of groundwater. For example, land uses including fueling are considered high risk.

(Ord. 2704)

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