

# RECYCLED WATER PROGRAM APPLICATION & PERMIT

## CITY OF HEALDSBURG MUNICIPAL UTILITIES

401 GROVE STREET  
HEALDSBURG, CA 95448-4723  
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## APPLICATION

\*\*\*\*\*SECTION TO BE COMPLETED BY APPLICANT\*\*\*\*\*

### USER INFORMATION:

User's Name (individual): \_\_\_\_\_

Name of Company: \_\_\_\_\_

Mailing Address: \_\_\_\_\_

City/State/ZIP Code: \_\_\_\_\_

Office Phone: \_\_\_\_\_ Fax: \_\_\_\_\_

Primary Contact: \_\_\_\_\_ Title: \_\_\_\_\_

Site Supervisor: \_\_\_\_\_

Cell Phone or Other Phone: \_\_\_\_\_

Email: \_\_\_\_\_

## AGREEMENT FOR THE USE OF RECYCLED WATER

This Agreement is made and entered into at Healdsburg, California, as of this \_\_\_\_ day of \_\_\_\_\_, 20\_\_\_\_, between the City of Healdsburg, a municipal corporation (City), and (User), and provides as follows:

### RECITALS:

## RECYCLED WATER PROGRAM APPLICATION & PERMIT

A. City owns and operates a wastewater treatment plant at 340 Foremen Lane in Healdsburg, Sonoma County, California, which is within the jurisdiction of the North Coast Region of the California Regional Water Quality Control Board ("Regional Board"). City collects and treats wastewater generated within City's service area, and either discharges treated wastewater to the Basalt Pond, or will recycle treated wastewater ("Recycled Water") for irrigation purposes.

B. User owns approximately \_\_\_\_ acres of Irrigated Land in Sonoma County, California, more particularly described in Exhibit "A" attached hereto and incorporated herein by reference, which land has been improved with vineyard plantings (the "Property").

C. City intends to recycle treated wastewater as a means of reducing the amount of treated wastewater being discharged into the Basalt Pond.

D. City is authorized to discharge treated wastewater to authorized recycled water use sites, pursuant to Order R1-2010-0034 adopted by the Regional Board on October 28, 2010, together with all attachments thereto (all collectively referred to as "the Order").

E. User desires to accept delivery of Recycled Water from City to be used and applied only in such ways as are specifically permitted pursuant to the Order, as modified and approved through this Agreement.

F. City agrees to delivery to User, and User agrees to accept from City, Recycled Water on the terms and conditions hereinafter set forth.

### DEFINITIONS:

The following terms shall have the meanings described below:

Agreement means this Agreement for the Delivery and Use of Recycled Water.

Agronomic Rate means the hydraulic loading reasonably necessary to satisfy the water uptake needs of the use area considering plant, soil, and climate demands.

Regional Board or "RWQCB" means the California Regional Water Quality Control Board, North Coast Region.

City means City of Healdsburg, a municipal corporation established pursuant to the laws of the State of California.

Delivery Period or Irrigation Season generally means April 1 thru October 31 of each year. Delivery Period may be adjusted in dry years.

## RECYCLED WATER PROGRAM APPLICATION & PERMIT

Delivery Quantity means those amounts so specified in the Agreement in Section 3.

Engineer means the City of Healdsburg's City Engineer.

HCF means hundred cubic feet (one HCF = 748 gallons)

Meter Station means control valve and metering station located on User's property, and shall constitute the point of delivery. Meter Station(s) are depicted in Exhibit "D."

Irrigated Land or Land means property designated by User to be irrigated with Recycled Water in accordance with these Specifications and the Agreement.

Order means all of the following: (a) the National Pollutant Discharge Elimination System (NPDES) permit, or successor permit, establishing requirements for the City's discharge of treated wastewater, (b) and, if separate, the Water Reclamation Permit, or successor permit, establishing requirements for reuse of Recycled Water, as may be issued, modified or reissued by the Regional Board or successor governmental entity.

Property means the parcels described in Exhibit A.

Recycled Water means water which, as a result of treatment of wastewater influent to Healdsburg's wastewater treatment facility in accordance with the Order, is suitable for the direct beneficial uses allowable for Disinfected Tertiary Treated Wastewater as defined by Title 22, Division 4 of the California Code of Regulations, Section 60301.

User's Recycled Water System means the facilities and infrastructure installed by User to facilitate the delivery of Recycled Water from City to User.

User means the person or persons using Recycled Water provided by the City pursuant to the Agreement.

Water Reclamation Facility (or "WRF") means the City's wastewater treatment plant located at 340 Foreman Lane, Healdsburg, CA.

# RECYCLED WATER PROGRAM APPLICATION & PERMIT

## AGREEMENT:

### 1. Term

A. This Agreement shall become effective on the date first above written and shall remain in effect for the 2014 and 2015 irrigation seasons/delivery periods, unless otherwise terminated in accordance with Section 13, below.

B. The Parties understand and agree that, during the term of this Agreement, the City and Regional Board will be developing a long-term agreement or other instrument to enable User to apply Recycled Water to the Property in subsequent years. User understands and acknowledges that, even though the City and the Regional Board will make good-faith efforts to agree upon and enter into such a long-term agreement, nothing in this Agreement or any other document should be understood or construed as a guarantee or warranty that User may be able to apply Recycled Water to the Property after the conclusion of the 2015 irrigation season.

### 2. Quality of Recycled Water

A. The quality of the Recycled Water delivered pursuant to this Agreement shall substantially comply with the quality criteria established by the Order, although the Recycled Water's quality may vary within those criteria. City shall test the Recycled Water as required in the Order to ensure that it substantially complies with the quality criteria set forth in the Order. The results of this testing program shall be available to User for its review upon request at any time during City's normal business hours. The results of said tests shall be maintained at City's WRF and may be reviewed or a copy obtained by User by telephoning City. An annual report of the test values shall be sent by mail to User in accordance with the reporting requirements established in the Order.

### 3. Delivery Quantities, Rate and Pressure

A. As described in Section 4 below, the City shall deliver a minimum of \_\_\_ gallons per day of Recycled Water at a maximum rate of \_\_\_ gallons per minute (gpm). Such Recycled Water shall be delivered to the Meter Stations at a pressure between 25 and 90 pounds per square inch (psi). Such Recycled Water may also be delivered less frequently than daily and at a greater rate, provided that User agrees to such deliveries and such deliveries are consistent with all other terms of the Order. User agrees that User will put such water to reasonable and beneficial use in irrigating the Property. If desired by User, the City will in good faith attempt to provide User with quantities of Recycled Water in excess of the minimum quantity identified above, but the City makes no representation that such water will be available.

B. User represents and warrants that User will carefully monitor the application of Recycled Water on the Property and will only apply such water at the appropriate

## RECYCLED WATER PROGRAM APPLICATION & PERMIT

agronomic rate. In no case shall the total annual delivery of Recycled Water to User exceed the maximum rate of 9 inches/acre/year.

#### 4. Delivery of Recycled Water

A. City will deliver the Recycled Water to User through a pipeline extension from City's WRF, to the Meter Station(s) on User's Property shown on Exhibit "A". City shall be responsible for the installation, operation, maintenance and repair of the pipeline transporting Recycled Water to the Meter Station(s), and for installation of the Meter Station(s). User may, by means of tanker trucks or other method reasonably acceptable to the City, haul Recycled Water from the City's distribution points to the Property. Filling of tanker trucks or other conveyance at the City's distribution points shall occur during normal business hours.

B. User shall be responsible for the modification of existing piping on User's Property and the installation of new piping on User's Property to the extent that is necessary to connect the User's irrigation system to the Meter Station(s). User shall be responsible for the operation, maintenance or repair of said piping and appurtenances. User shall, in the alternative, be responsible for the construction and operation of any facilities located on the Property that are needed to receive tanker truck or other deliveries of Recycled Water.

C. User shall be responsible for the installation, operation, maintenance and repair of any piping, pumping facilities and cross-connection devices for the use of raw or potable water on User's Property. All such facilities are subject to inspection by either the City or the Regional Board to ensure the protection of the public. In the event that either the City or the Regional Board determines that such facilities are not operating in a manner that fully protects the public and the groundwater, either the City or the Regional Board may order User to make any necessary improvements/repairs to such facilities, at User's sole cost.

#### 5. Designation of Site Supervisor

A. User shall designate an individual as User's Site Supervisor who shall be User's coordinator and direct contact person between City and User. User agrees that the Site Supervisor shall be responsible for the proper operation of User's Recycled Water System, implementing the requirements of the Order and this Agreement relative to the onsite use of Recycled Water, monitoring of User's Recycled Water System for prevention of potential hazards, and coordination with City and the regulatory agencies, when necessary. City shall assist in the training of User's Site Supervisor. User shall notify City of the name, position and phone number of User's Site Supervisor at least 30 days prior to startup of User's Recycled Water System and shall promptly inform City of any change of designated Site Supervisor and/or contact information during the term of this Agreement.

B. The Site Supervisor shall be responsible for the avoidance of cross-connections during the installation, operation and maintenance of the User's pipelines and

## RECYCLED WATER PROGRAM APPLICATION & PERMIT

equipment. The Site Supervisor shall attend a training course, conducted by the City, specific to Recycled Water use, the Order, and prevention of cross-connections.

C. The Site Supervisor shall communicate no less frequently than quarterly to inform the City of any system modifications, system irregularities, and to verify employee training. Unusual occurrences which cause or threaten to cause any violation of this Agreement shall be promptly communicated to the City.

### 6. Compliance with Water Quality Control Board Order R1-2010-0034.

A. City and User shall comply with all provisions and requirements of the Order, as it may subsequently be amended. User acknowledges to City that User is aware that the water delivered pursuant to this Agreement is Recycled Water to be used for only specified and limited uses, as further described in Section 11, below. User has received a copy of the Order. User is familiar with and understands all of the provisions and requirements contained in the Order, and, in particular, the Water Reclamation Requirements and Provisions in Attachment G, and hereby agrees that those provisions and requirements are reasonable. User covenants and warrants that it shall comply with all the provisions and requirements of the Order and this Agreement in the purchase and use of Recycled Water.

B. User also shall comply with all of the additional provisions and requirements established by City, in the delivery and use of the Recycled Water, which are set forth in the City's Recycled Water Engineering Report, as further described in Exhibit "C", attached hereto and incorporated herein by this reference.

C. User shall use the Recycled Water delivered hereunder only for those uses authorized in the Recycled Water User permit and consistent with the Order and this Agreement, including the requirements of City set forth in Exhibit "C".

D. The City shall have responsibility under the Agreement to Prepare Programmatic, Site-Specific and other Technical Reports; and Training Programs; as required in Attachment G to the Order. The City shall also have the responsibility to conduct all training required under such Training Programs required in Attachment G to the Order. User agrees to provide all relevant information necessary for the preparation of such reports in a timely manner, and to participate in Training Programs.

### 7. Availability of Recycled Water; Interruption of Service.

A. Irrigation equipment downstream of Meter Station(s) on the Property shall be provided, replaced and repaired as necessary by User, at User's discretion, *provided that* all such irrigation equipment shall be subject to inspection and repairs as provided in Section 4C above. User shall complete all work and shall be responsible for all costs of construction, operation and maintenance of all other modifications and improvements on User's property,

## RECYCLED WATER PROGRAM APPLICATION & PERMIT

which are not the responsibility of the City. Such other modifications include marking and signing required by the Order, e.g.:

- Placing of appropriate signs, to be provided by the City, on the site perimeter that notifies User employees and the public of the use of Recycled Water on the site.
- Marking all solenoid valve boxes on the User's Recycled Water System by placing an appropriate purple tag on the existing valve box lid, or by replacing with a new purple lid.
- User acknowledges and understands that the City's delivery of Recycled Water is subject to the Order and the waste discharge requirements imposed by the Regional Board and that the City does not intend to deliver Recycled Water to User outside the Delivery Periods absent additional authorization from the Regional Board.

B. User agrees to cooperate with City, at City's request, in the establishment of reasonable and mutually agreeable delivery schedules for the Recycled Water. User recognizes that the requests of various users may overload the capacity of City's WRF and delivery system and that City therefore may need to reduce the rates at which Recycled Water is delivered to the various users from time to time. In the event that the City reduces User's requested rate of delivery, City shall use reasonable efforts to restore the requested rate of delivery as soon as feasible and provide User with that amount of water it would have received had its rate of delivery not been reduced.

C. City shall use reasonable efforts to ensure that service to User is provided Recycled Water consistent with the established delivery schedules, and User shall use its best efforts to accept Recycled Water as provided herein. However, both parties acknowledge that City's supply and delivery of Recycled Water and User's ability to take delivery of said water may occasionally be interrupted or curtailed due to causes outside of its control, including, but not limited to:

- acts of God
- power failures
- accident
- fire
- strikes, riots, war
- facility failure, facility repairs/improvements
- actions or decisions by a governmental agency
- any condition outside of a party's control.

## RECYCLED WATER PROGRAM APPLICATION & PERMIT

Neither party shall be liable to the other for damages arising out of interruption or curtailment of service for these reasons. Insofar as feasible, the party whose performance hereunder is affected by such condition shall give the other party at least 72 hours advance notice of a temporary discontinuance or reduction in its delivery (in the case of City) or in its acceptance (in the case of User) of Recycled Water, except in the case of emergency, in which case notice need not be given. In the event of such discontinuance or reduction, the parties shall deliver or accept, as appropriate, upon resumption of service and as nearly as may be feasible, the quantity of Recycled Water that would have been delivered or accepted in the absence of such discontinuance or reduction.

8. Measurement of Delivered Recycled Water. All Recycled Water delivered pursuant to this Agreement shall be measured by the City at the Meter Station(s) or other appropriate facilities. City shall own, inspect, operate, maintain, repair and replace the measuring equipment. All determinations relative to the measuring of Recycled Water shall be made by the City. Upon request by User, the accuracy of a measurement shall be investigated by the City and any error appearing therein shall be adjusted. User may inspect such measuring equipment for the purpose of determining the accuracy thereof.

9. Monitoring Reports. User shall provide monitoring reports on the form prescribed by the City on a weekly basis or as otherwise required by the City and submit them to City by the fifth (5th) day of each month following the preceding month. Movement of Recycled Water off-site by spray or runoff shall be fully reported by User in such reports, which shall also state what corrective action(s) were taken to prevent such movement from recurring.

10. Record Drawings: Within 30 days of execution of this Agreement, User shall provide City with record drawings showing the complete User's Recycled Water System. Following any onsite modifications and changes to User's Recycled Water System and/or User's potable water systems, User shall provide City with record drawings showing the complete Recycled Water irrigation system and modifications and changes made by User on Irrigated Land. User shall provide City with record drawings each time User modifies or changes User's Recycled Water System on the site during the term of this Agreement. The record drawings shall clearly show the locations of all pipelines, controllers, valves, fountains, buildings, structures, property boundaries, agriculture wells, domestic (drinking) wells, and any other features known or considered to be pertinent to or affected by the onsite use of Recycled Water.

11. Use of Recycled Water: The conditions and mitigation measures contained in 2005 Wastewater Treatment Plant Upgrade Final Environmental Impact Report and any subsequent site specific environmental studies are hereby incorporated into this Agreement. These conditions and mitigation measures include, but are not limited to, the following:

- All Recycled Water delivered by City to User pursuant to this Agreement shall be used only on the Property and only for vineyard irrigation purposes.

## RECYCLED WATER PROGRAM APPLICATION & PERMIT

- User's use of Recycled Water for vineyard irrigation purposes shall be restricted to agronomic rates of application as determined by the Programmatic Operations and Management Technical Report for Micro-Irrigation of Vineyards in the Healdsburg Area prepared by Larry Walker Associates April 2014.
- Storage of Recycled Water on the Property in unlined ponds is prohibited.
- Recycled Water may not be used for frost protection.
- User's rights to Recycled Water deliveries hereunder are not transferable or assignable. User shall not sell, give, transfer or distribute any of the Recycled Water delivered to it pursuant to this Agreement to any other party for any use, and User shall be the sole party using the Recycled Water.

12. Permission to Enter: User hereby grants City, acting through its duly authorized employees, agents, or representatives, reasonable access to User's property for any necessary work associated with this Agreement, including, but not limited to, meter reading, monitoring of Recycled Water use by User, and/or repair of City-owned Meter Station equipment.

13. Termination.

(A) Notice: Should one party breach any of the terms and conditions in this Agreement, written notice of such breach shall be given to the breaching party by the other party. If reasonable steps toward correcting the breaching conditions are not taken within 5 days from such notice, the other party may, in addition to any remedies provided in this Agreement and/or by law, terminate this Agreement on 30 days' written notice to the breaching party.

(B) Termination: Notwithstanding subsections (A) above, City may terminate this Agreement immediately if:

- (1) City, at its sole determination, is or will be unable to deliver properly and adequately treated recycled water to User for any reason whatsoever for a period greater than 30 days.
- (2) The RWQCB changes City's discharge requirements for irrigation and City determines that it cannot reasonably meet any of the new RWQCB requirements.
- (3) City is ordered to cease delivery of recycled water to User by a governmental authority of competent jurisdiction.

# RECYCLED WATER PROGRAM APPLICATION & PERMIT

14. Specific Performance of Agreement. User understands and acknowledges that City is not permitted to discharge recycled water during certain times of the year, and will rely on delivery of recycled wastewater to User (and others) to comply with this requirement. Therefore, City is relying on a good-faith performance of User in accepting and using recycled wastewater in accordance with the Order and this Agreement. If User, as reasonably determined by City, fails to accept and dispose of the recycled wastewater as agreed herein, City will suffer irreparable harm and will not be adequately compensated by money damages for said harm. User and City agree that City may obtain an injunction compelling specific performance of this Agreement together with such other relief as may be allowed by law. In addition to any other remedy available at law, including without limitation, an order for specific performance or a prohibitory injunction, City shall be entitled to terminate this Agreement, in its sole discretion and without notice, in the event of a default or material breach of this Agreement by User. Default events shall include, but not be limited to, cessation by User of recycled water irrigation without cause, material violations of the terms and conditions of this Agreement, or actions by User which results directly or indirectly in enforcement actions against the City or User by regulatory agencies.

15. Hold Harmless and Indemnification. Each party hereto agrees to protect, indemnify, defend and hold harmless the other party and its directors, officers, employees, agents, successors and assigns from and against any and all actual or potential claims, liabilities, damages, losses, fines, penalties, judgments, awards, costs and expenses (including without limitation reasonable attorneys' fees and costs and all foreseeable, unforeseeable and consequential damages) asserted against, resulting to, imposed upon or incurred by said other party by reason of the first party's breach of any provisions of this Agreement or the Order. This indemnification shall survive the termination of this Agreement. To implement this provision, User agrees to obtain and continue in force at all times during the life of this Agreement a comprehensive general liability insurance policy covering liability from the use of Recycled Water, or such other insurance policy reasonably acceptable to the City, that names the City, its elected officials, officers, employees, contractors, sub-contractors and agents as additional insureds by endorsement and that has a policy limit of at least \$ 1 million per occurrence and \$ 1 million aggregate.

16. Notices. Any notice, action, or demand by either party to the other in connection with this Agreement shall be deemed to have been fully given or made when such notice, action, or demand is written and deposited in a sealed envelope postage prepaid, and addressed as designated below. Either party may change its address by giving the other party written notice of its new address.

City: City of Healdsburg  
Attn: City Engineer  
401 Grove Street  
Healdsburg, CA 95448

User: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

## RECYCLED WATER PROGRAM APPLICATION & PERMIT

17. Entire Agreement. This Agreement shall constitute the entire agreement between the parties relating to the rights granted and obligations assumed in this Agreement. Any oral representations or modifications concerning this Agreement shall be of no force and effect unless contained in a subsequent written modification signed by both parties.

18. Amendments. This Agreement may not be amended except by a written instrument that is signed by both parties.

19. Interpretation. This Agreement shall be construed, interpreted, and applied according to the laws of the State of California.

20. Successors. This Agreement shall be binding upon and inure to the benefit of the respective successors and assigns of the parties; provided that User has complied with paragraph 9 hereof.

21. Attorneys' Fees. If either party commences an action at law or in equity, arbitration or other proceeding against the other party to enforce or interpret this Agreement, the prevailing party shall be entitled to recover from the losing party reasonable attorneys' fees and costs of such proceeding, in addition to any other amounts which may be awarded.

22. Severability. If any clause or provision of the Agreement is or becomes illegal, invalid, or unenforceable because of present or future laws, or any rules or regulations of any governmental body or entity, effective during its term, the intention of the parties is that the remaining parts of this Agreement shall remain in full force and effect if the fundamental purpose of the Agreement is not destroyed.

23. Covenants Running with the Land. User declares that its covenants and obligations specified in this Agreement constitute covenants running with the land within the meaning of California Civil Code Section 1468, shall benefit the City's WRF, and shall burden the real property described in Exhibit "A" attached.

24. Exhibits to this Agreement. Exhibits A, B, C, and D are incorporated into this Agreement by this reference in their entirety. They shall be available for inspection in the Clerk's Office, 401 Grove Street, Healdsburg, California 95448, during regular business hours.

25. Third-Party Beneficiaries. This Agreement shall not create any right or interest in any non-party or in any member of the public as a third party beneficiary.

# RECYCLED WATER PROGRAM APPLICATION & PERMIT

## EXHIBITS TO AGREEMENT FOR THE DELIVERY AND USE OF RECYCLED WATER

EXHIBITS C AND D ARE AVAILABLE FOR INSPECTION DURING REGULAR  
BUSINESS HOURS IN CITY ENGINEER'S OFFICE,  
401 GROVE STREET, HEALDSBURG, CA 95448)

- A Description of Land Covered by this Agreement
- B Best Management Practices
- C Recycled Water Engineering Report
- D Map Showing Meter Station for Recycled Water

### EXHIBIT B

#### **Recycled Water Handling and Use Requirements, Prohibitions and Best Management Practices**

1. Recycled water users should apply hand sanitizer or wash their hands with soap and potable water after working with recycled water.
2. Recycled water shall not be applied in areas where the public would be inadvertently exposed to recycled water.
3. Do **not** drink recycled water or use it for food preparation. Additionally, the USER must notify workers and/or the public when recycled water is used at a site and tell them that they are not to drink recycled water or use it for food preparation.
4. Precautions should be taken to avoid food coming into contact with recycled water while the use site is still wet.
5. An adequate first aid kit shall be made available at all times. Cuts or abrasions should be promptly washed, disinfected, and bandaged.
6. Recycled water shall not be allowed to spray onto external drinking water fountains or faucets used for potable water.
7. Recycled water shall not be applied where it could contact or enter passing vehicles, buildings, areas where food is handled or eaten, or storm drains.
8. Recycled water users shall take adequate measures to prevent overspray, ponding, or run off of recycled water from the authorized recycled water use area.
9. Recycled water shall not be applied on water-saturated or frozen ground or during periods of

## RECYCLED WATER PROGRAM APPLICATION & PERMIT

precipitation such that runoff is induced.

10. Recycled water shall not be applied on slopes if runoff cannot be controlled.
11. There shall be no irrigation or impoundment of recycled water within a minimum of 50 feet of any domestic (drinking water) well.
12. Recycled water shall not be allowed to escape from the designated use area(s) as surface flow that would either pond and/or enter waters of the State.
13. No recycled water shall be applied to irrigation areas during periods when soils are saturated.
14. Recycled water shall not be applied into State waters, within 25 feet of State waters containing standing or flowing water, nor in a manner that could result in uncontrolled runoff into State water.
- ~~15. Recycled water must not be introduced into any permanent piping system and no connection shall be made between the tank truck and any part of a potable water system.~~ 
16. User must comply with all requirements and restrictions specified by the Regional Water Quality Control Board and the California Department of Public Health Title 22.

**RECYCLED WATER PROGRAM APPLICATION & PERMIT**

**PERMIT**



\*\*\*\*SECTION TO BE COMPLETED BY CITY STAFF\*\*\*\*

Permit Number: \_\_\_\_\_ Effective Date of Permit:  
\_\_\_\_\_

**AUTHORIZATION:**

User is authorized to use recycled water in accordance with City’s agreement for the use of recycled water and applicable recycled water use requirements and restrictions set forth by the Regional Water Quality Control Board and California Department of Public Health.

Authorized City Staff Printed Name: \_\_\_\_\_

Authorized City Staff Signature: \_\_\_\_\_

Date: \_\_\_\_\_



**I CERTIFY THAT I HAVE READ, UNDERSTAND, AND AGREE TO ABIDE BY THE ABOVE**

**GUIDELINES.**

Permit Number: \_\_\_\_\_

Date: \_\_\_\_\_

Print Name: \_\_\_\_\_

Signature: \_\_\_\_\_

Company: \_\_\_\_\_

## APPLICATION OF RECYCLED WATER AT AGRONOMIC RATES

The use of recycled water for vineyard irrigation will be protective of groundwater quality by ensuring irrigation occurs within established agronomic rates. The agronomic rate assessment assumes there will be no nitrogen in percolating groundwater because all applied nitrogen will be utilized by the plants. The agronomic rate assessment also assumes no impacts to groundwater salinity because the irrigation rate will be less than the annual deep percolation rate. The assessment will be conducted using hydraulic, nitrogen, and salinity thresholds determined for the irrigated area by local agronomists and groundwater hydrologists. Compliance with agronomic rates will be assessed by comparing actual rates on each use site with the lowest of the thresholds presented in **Table 4**.

**Table 4. City of Healdsburg Agronomic Rate Thresholds**

Area	Thresholds		
	Hydraulic	Nitrogen	Salinity
Valley Floor Vineyards (Piped Recycled Water)	75% of Full ET <sub>c</sub>	15 lb N/acre-year (from recycled water application only) 30 lb N/acre-year (from all nitrogen sources)	9 in/year (+/- 10%)
Other Vineyards (Trucked Recycled Water)	75% of Full ET <sub>c</sub>	15 lb N/acre-year (from recycled water application only) 30 lb N/acre-year (from all nitrogen sources)	Not applicable

The hydraulic threshold (75% of Full ET<sub>c</sub>) will be distributed over the March to October growing season based on ET<sub>o</sub>. The threshold will be applied as a general rule to address local soil types and cultural practices, while providing flexibility to the vineyard operator if extreme heat and drought conditions necessitate additional irrigation. The nitrogen threshold related to recycled water content (15 lb N/acre per year) will be distributed over the March to October growing season according to plant demand. The 15 lbs of N/acre-year is based on a 9 in/year irrigation rate and 7 mg/L total nitrogen concentration in recycled water (2012 irrigation season results). A secondary threshold of 30 lbs of N/acre per year added by all nitrogen sources (i.e., recycled water, fertilizers, well water, and precipitation) will also be evaluated.<sup>21</sup> The California Sustainable Winegrowing Alliance recommends 30 lbs of N/acre per year to sustain medium vigor vines.<sup>22</sup> The salinity threshold of 9 in/year (recommended by Gus Yates in the 2010 groundwater study)<sup>23</sup> will also be evaluated. The annual deep percolation rate in the valley floor area is 15 in/year. The average total dissolved solids (TDS) concentration of the recycled water is

<sup>21</sup> Fertilizer application is needed when new vines are established or when nitrogen deficient conditions are identified in the soil and plants.

<sup>22</sup> California Sustainable Winegrowing Alliance, "Third Edition California Code of Sustainable Winegrowing Workbook," 2012. (Soil Management Chapter, page 10).

<sup>23</sup> Yates, Gus, "Impacts of Recycled Water Irrigation on Groundwater and Surface Water Flow and Quality near Healdsburg: A Generalized Approach." Letter to City of Healdsburg, September 21, 2010. (Page 17)

335 mg/L, less than the secondary MCL.<sup>24</sup> Irrigation at 9 in/year will insure that dilution occurs and the percolating water quality will be less than 335 mg/L. A study to assess deep percolation rates at other sites has not been conducted, so a salinity-based threshold is not applicable at this time. Recycled water application within the hydraulic, nitrogen, and salinity thresholds in **Table 4** will prevent runoff and degradation of groundwater quality.

The City will compile the information identified in **Table 5** each month. The information will be used to calculate the actual loading rates, and assess whether or not the designated thresholds have been exceeded. If a threshold is exceeded, the City will discuss operations with vineyard users and obtain information on the irrigation regime. If necessary, the City will provide recommendations to reduce recycled water irrigation rates and change operations in the following month. The reduced irrigation requirements could be accomplished by supplementing or replacing recycled water irrigation with local well water or applying less fertilizer.

**Table 5. Information Compiled by the City of Healdsburg to Assess Compliance with Agronomic Rates**

Information	Responsible Entity	Frequency
Block Number and Area Irrigated	Vineyard Operator	Monthly
Source and Volume of Irrigation Water Applied to each Block (e.g., recycled water, well water)	Vineyard Operator	Monthly
Percent Shaded Ground at Solar Noon	Vineyard Operator	Average Values in 2 randomly selected Blocks per Month
Amount and Nitrogen Content of Fertilizer Applied to Each Block	Vineyard Operator	Monthly
Total Nitrogen Concentration in Recycled Water	City of Healdsburg	Monthly
Precipitation Measured at WWTF	City of Healdsburg	Daily
ET <sub>o</sub> Measured at CIMIS Station 103 (Windsor)	City of Healdsburg	Monthly
Total Volume of Recycled Water Delivered to Vineyard Users	City of Healdsburg	Monthly

The calculations that will be used to determine the agronomic loading rates and make the threshold comparisons are depicted as examples in **Table 6** (Hydraulic Assessment) and **Table 7** (Nitrogen Assessment). The results of the spreadsheet analysis and a discussion of activities implemented by the City or the vineyards users will be provided to the Regional Water Board in the City's Quarterly Recycled Water Reports as required by Order No. R1-2010-0034.

<sup>24</sup> Secondary Maximum Contaminant Level (MCL) for TDS is 500 mg/L, CDPH Title 22, Division 4, Chapter 15, Article 16, Table 64449-B.

## **BEST MANAGEMENT PRACTICES**

The use of recycled water will be protective of public health and surface water/groundwater quality by implementation of Best Management Practices (BMPs) at all use sites. The following BMPs are either required or suggested for vineyard operators to ensure safe operation of the recycled water system, reduce runoff, prevent ponding, and minimize impacts to groundwater and surface waters.

### **Irrigation Practices**

- Apply recycled water within hydraulic agronomic rates. [Required]
- Do not use recycled water for frost protection. [Required]
- Do not irrigate during rainfall events if runoff will be induced. [Required]
- Do not irrigate on water-saturated or frozen ground. [Required]
- Do not irrigate prior to a predicted rainfall event of 0.5 inches or greater. [Suggested]
- Consider implementing shorter, more frequent irrigation periods to prevent soil saturation and increase soil water available to roots. [Suggested]
- Do not irrigate for more than 12 continuous hours. [Suggested]
- Allow at least 24 hours of drying time between irrigations. [Suggested]
- Use well water or local surface water for irrigation above agronomic rates or post-harvest irrigation, if needed. [Suggested]
- Do not allow recycled water to pond on-site. All irrigation water must infiltrate within a 24-hour period. [Required]
- Do not irrigate within 50 feet of domestic water supply wells. [Required]
- Maintain 100 foot setbacks to surface waters (including ponds with river connections), unless it can be demonstrated that a lesser setback is sufficient. [Required]
- Use soil moisture monitoring devices to determine irrigation requirements. [Suggested]

### **Fertilization Practices**

- Apply recycled water within nitrogen agronomic rates. [Required]
- When calculating the amount of commercial fertilizer needed, consider nitrogen load applied through irrigation with recycled water. [Required]
- Cleanup fertilizer spills immediately and remove waste from the site. [Suggested]
- Do not leave fertilizers on paved surfaces or in locations where it could migrate offsite or into nearby surface waters. [Suggested]
- Use petiole measurements to determine amount of nitrogen fertilizer required. [Suggested]

## **Equipment Operation and Maintenance**

- Inspect and maintain irrigation distribution system once per week during growing season to prevent pipe breaks or leaks. [Suggested]
- Repair leaks or pipe breaks within 72 hours or prior to the release of 1,000 gallons, whichever comes first. [Required]
- Do not install hose bibs in areas that can be accessed by general public. [Required]
- Inspect and maintain drip emitters once per month during growing season. Verify or re-establish proper operation, aim, and flowrate. [Suggested]
- Adjust valves or pressure regulators to ensure operation of the irrigation system at the appropriate pressure. [Suggested]
- Use automatic rain shut-off devices. [Suggested]
- Test accuracy of irrigation timers and recalibrate or repair as necessary. [Suggested]
- Post recycled water use signs at site entrances and corners. Mark recycled water equipment with signs or purple tape. [Required]
- Inspect site once a month to verify the proper placement and legibility of recycled water identification signs, tags, stickers, and above ground pipe markers. Replace signs and markers as needed. [Required]
- Discourage or prevent public access to irrigation site. [Suggested]
- Utilize double-check valves to prevent backflows from the recycled water distribution system to agricultural wells. [Suggested]
- Conduct recycled water operations training prior to each growing season and whenever new employees are hired. [Suggested]

**Table 9. City of Healdsburg Recycled Water Cross-Connection Control Activities**

Required Action	Frequency	Documentation
Investigate site to determine cross-connection potential, perform shutdown test of recycled water system to ensure no cross-connections are present.	Prior to initial delivery of recycled water	Cross-Connection Control Investigation and Test Report – Parts I and II ( <b>Appendix C</b> )
Test all backflow prevention devices to determine if functioning properly.		Backflow Prevention Device Test Report ( <b>Appendix C</b> )
Investigate site to determine cross-connection potential.	Annually	Cross-Connection Control Investigation Report – Part I ( <b>Appendix C</b> )
Test all backflow prevention devices to determine if functioning properly.		Backflow Prevention Device Test Report ( <b>Appendix C</b> )
Shutdown recycled water system to test for cross-connections	Every five years (or more frequently if necessary)	Cross-Connection Control Investigation and Test Report – Parts I and II ( <b>Appendix C</b> )

### **Monitoring and Reporting Program**

To ensure public safety and operation of the recycled water system in conformance with legal requirements, periodic site observations and inspections will be conducted by the vineyard users and the City. The results will be submitted to the Regional Water Board in the Quarterly Recycled Water Report and summarized in the Annual Recycled Water Report. Recycled water quality results will be provided by the City to the vineyard users on a monthly basis.

If a violation of permit requirements or the California Health and Safety Code<sup>25</sup> occurs, proper notification by telephone (within 2-hrs or 24-hrs as applicable) will be made to Regional Water Board, CDPH, or the California Office of Emergency Services (Cal OES).

### **User Self-Monitoring and Reporting**

As part of the terms and conditions of the Recycled Water Use Agreement, the vineyard users will be required to perform observations of site conditions and verify proper operation of the recycled water distribution system. The vineyard users must perform the observations once per month during the irrigation season and record the results in the User Self-Monitoring Report (**Appendix D**). In addition to conducting site observations, the vineyard users must compile and report the following information to the City. This information will be used to assess compliance with agronomic rate requirements.

<sup>25</sup> Specifically, California Health and Safety Code Title 19, Div. 2, Chap. 4, Section 2703 which requires notification of the California Office of Emergency Services (Cal OES) when any release or threatened release of a hazardous materials occurs to surface waters.

- Block Identifier and Area Irrigated
- Source and Volume of Irrigation Water Applied to each Block (recycled water and well water)
- Percent Shaded Ground at Solar Noon (for 2 randomly selected Blocks per month)
- Amount and Nitrogen Content of Fertilizer Applied to Each Block

The User Self-Monitoring report and the recycled water use data must be submitted to the City by the fifth day of the month after the month when observations were performed. Although user self-monitoring is required on a monthly basis, user awareness must be continuous to note any violations of recycled water use requirements.

If a violation of recycled water requirements is observed (e.g., runoff from site, leaks/breaks in irrigation system, drainage to surface waters, reservoir overflows), the vineyard users must contact the City immediately by telephone. The vineyard users also have a responsibility to discuss any planned operational changes with the City prior to implementation. Depending on the nature of the violation and/or operational changes, the City will inform the Regional Water Board and may change the terms and conditions of the Recycled Water Use Agreement.

### ***City Monitoring and Reporting***

The City is responsible for recycled water quality leaving the WWTF and the permitted use of recycled water at the use sites. Samples of recycled water produced at the WWTF are collected and analyzed to assess regulatory compliance, and WWTF operations are continuously scrutinized to ensure production of high quality recycled water. The City will perform an unannounced, randomly timed inspection of the vineyard irrigation sites at least once per year. Observations will be recorded on the Site Inspection Report (**Appendix E**). The observations will be used to verify information reported in the User Self-Monitoring Reports including recycled water volume applied, operation of storage and irrigation systems, placement of warning signs, and evidence of runoff or ponding.

The City currently monitors the quality and quantity of recycled water leaving the WWTF as defined in Order No. R1-2010-0034. A list of the required constituents and sampling frequencies are presented in **Table 10**. Samples of recycled water quality are collected after disinfection, prior to effluent storage (Location EFF-001 or REC-001) and after storage, immediately before irrigation delivery (Location REC-002). Process control samples are collected after filtration (Location INT-001) and immediately after disinfection (EFF-001). The total amount of recycled water delivered daily is determined from a flow meter at the WWTF.

## **Training Program Overview**

Prior to startup of the recycled water system, all WWTF staff (and City employees that interface with the recycled water program) will receive an orientation on recycled water program operation and regulatory requirements. Order No. R1-2010-0034, CCR Titles 17 and 22, and sections of the WWTF O&M Manual on water recycling facilities will be reviewed by the participants. As appropriate, the participants will tour the use sites to identify monitoring locations, distribution valves, piping, and the irrigation system. Newly-hired employees will tour the use sites and the WWTF during their first month of work to learn how the recycled water is produced, monitored, and distributed to the use sites.

The City will conduct training of vineyard employees prior to startup of the recycled water distribution system. A training event will be conducted with City staff, each vineyard's Site Supervisor, and key vineyard personnel. The training will provide an overview of recycled water regulations, introduce the program forms, and detail how/when to submit the required information. A copy of Order No. R1-2010-0034, CCR Titles 17 and 22, and recommended BMPs will be provided to the Site Supervisor and key personnel to facilitate understanding of the recycled water program, activities that must be conducted, and regulatory requirements. Additional training will be provided by the City as necessary to address any particular issues noted during program implementation. The training program content and administration is detailed in a separate document entitled, "City of Healdsburg Recycled Water Training Program Technical Report, Micro-irrigation of Vineyards."



City of Healdsburg Recycled Water Program

**Recycled Water User Self-Monitoring Report (Cont.)**

**Designated Recycled Water Use**

Have there been any changes in recycled water use from those listed in your Recycled Water Use Agreement?  
(for example: new crops, irrigation system, additional acreage, public access)

Yes       No

If yes, describe the changes.


**Odors**

Any odors present that are related to recycled water use?

Yes       No

If yes, describe the odor & estimate source/direction of travel.


**Ponding**

Any ponding of recycled water?

Yes       No

If yes, describe existing conditions, locate the ponding areas on an attached site map, and note below if mosquitoes or larvae are present.


Evidence of mosquitoes?

Yes       No

If yes, describe the evidence observed.


**City of Healdsburg Recycled Water Program  
Recycled Water User Self-Monitoring Report (Cont.)**

**Signage**

Are recycled water use signs properly posted and legible?

Yes     No

Is recycled water equipment identified with tags, stickers, purple tape?

Yes     No

If no, explain how the problems will be corrected.


**Leaks and/or Breaks in Equipment**

Any leaks or breaks in the recycled water distribution system?

Yes     No

If yes, describe the problems below and locate the leaks or broken pipes on an attached map.


**Repairs and/or Operational Changes**

Have the above-noted deficiencies been corrected?

Yes     No

If no, what are the plans and timeline for completion?


If yes, what work was completed?


**City of Healdsburg Recycled Water Program  
Recycled Water User Self-Monitoring Report (Cont.)**

**Certification**

"I certify under penalty of law that this document and all attachments are prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gathered and evaluated the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations."

This report must be signed by the Recycled Water Site Supervisor.

Signature: \_\_\_\_\_

Print Name: \_\_\_\_\_

Title: \_\_\_\_\_

Date: \_\_\_\_\_

Signature of Person Conducting Inspection:

\_\_\_\_\_  
*(if different than the Recycled Water Site Supervisor)*

