

**City of Veneta  
Lane County, Oregon  
Effluent Recycle Plan  
2013**

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**Table of Contents**

<b>INTRODUCTION.....</b>	<b>2</b>
<b>BENEFICIAL PURPOSE AND CLASS OF RECYCLED WATER USED.....</b>	<b>3</b>
<b>TREATMENT SYSTEM .....</b>	<b>4</b>
<b>EFFLUENT CHARACTERISTICS .....</b>	<b>4</b>
<b>RECYCLED WATER MONITORING AND SAMPLING .....</b>	<b>5</b>
<b>DISINFECTION AND SAMPLING .....</b>	<b>5</b>
<b>LAND APPLICATION PLAN .....</b>	<b>7</b>
<b>CROPS .....</b>	<b>7</b>
<b>CROP MANAGEMENT AND NUTRIENT RECYCLING.....</b>	<b>7</b>
<b>IRRIGATION SYSTEM.....</b>	<b>8</b>
<b>EFFLUENT IRRIGATION PRACTICE .....</b>	<b>9</b>
<b>SYSTEM MAINTENANCE AND CONTINGENCY PROCEDURES.....</b>	<b>9</b>
<b>CLIMATE .....</b>	<b>10</b>
<b>TOPOGRAPHY, SURFACE WATER, and GROUNDWATER .....</b>	<b>10</b>
<b>DETERMINATION OF ACREAGE REQUIRED FOR RECYCLED WATER USE</b>	
<b>WATER REQUIRMENTS .....</b>	<b>10</b>
<b>PUBLIC HEALTH AND ENVIRONMENTAL CONTROLS.....</b>	<b>11</b>
<b>SITE DESCRIPTION.....</b>	<b>13</b>
<b>SOIL CHARACTERISTICS .....</b>	<b>14</b>
<b>REPORTING .....</b>	<b>14</b>
<b>MONITORING .....</b>	<b>15</b>
<b>SIGNS AND NOTIFCATION .....</b>	<b>15</b>

**Figures**

Figure 1: Veneta wastewater facility and irrigation site. ....	2
Figure 2: Recycled water irrigation area for Veneta facility. ....	14

**Attachments**

1. Oregon Administration Rules (OAR) 340-55-015, Beneficial Use Table
2. Veneta Recycled Water Use Checklist
3. Veneta Water Balance Spreadsheet
4. Veneta Sprinkler Lay Out
5. Estimating Soil Moisture
6. Veneta Soils

## **PERMIT INFORMATION**

Permittee: City of Veneta  
PO Box 458  
Veneta OR 97487

### **Facility:**

City of Veneta Wastewater Treatment Facility

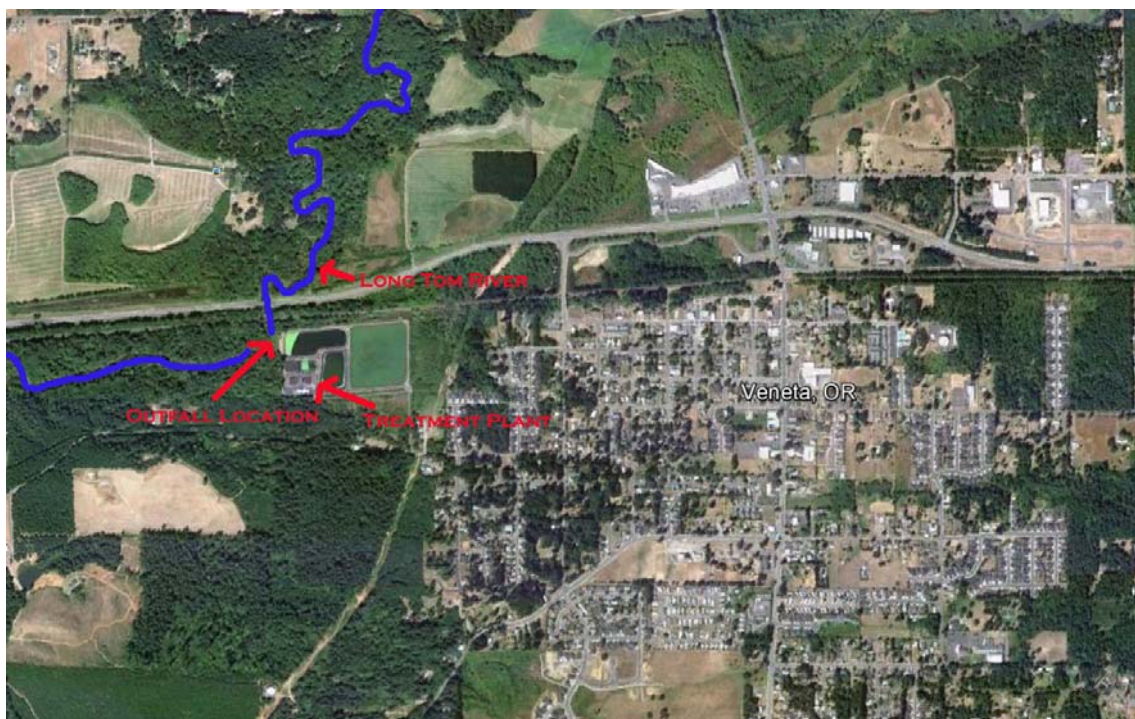
### **Facility Location:**

City of Veneta  
24679 Sertic Rd  
Veneta OR 97487

File Number: 92762  
NPDES Minor Permit Number: 101695  
EPA Number: OR0002053-2

Treatment Level: 2  
Collection Level : 2

Operator Level: 2.  
Operator: Kyle Schauer



***Figure 1: Veneta wastewater facility and irrigation site.***

## **INTRODUCTION**

The recycled water use plan (RWUP) is the wastewater reuse management for the City of Veneta. The plan includes a characterization of the site, recycled water beneficial uses, setbacks, current effluent quality requirements crop nutrient requirements as well as seasonal crop consumptive loading. Irrigation scheduling and crop management will be in accordance with Oregon Department of Environmental Quality (DEQ) recycle water use rules (OAR 34-055). This updated Recycled Water Plan supersedes any previously recycled water use plans unless otherwise noted.

The City of Veneta owns the property and operators irrigation system used for their recycled water.

**Table 1: Contact information of recycled water users**

Name, Title	Contact Information: address and phone	Department/Agency	Email
Kyle Schauer, Public Works Director	PO Box 458 City of Veneta OR 97487 541.935.2191	City of Veneta Public Works	<a href="mailto:kschauer@ci.veneta.or.us">mailto:kschauer@ci.veneta.or.us</a>
Justin Mitchell Utility Worker II Operator	PO Box 458 Venta OR 97487 541-935-2191	City of Veneta Public Works	

## **BENEFICIAL PURPOSE AND CLASS OF RECYCLED WATER USED**

Beneficial use of recycle water must be identified in the RWUP [OAR 340-055-0025(1)(c)] **See Attachment 1**. This requirement allows the permittee to declare before the irrigation season the Class of recycled water irrigated each year based on crop types and use.

**Table 2: Beneficial Purpose**

The City of Veneta's recycle water beneficial uses for different land uses and crop applications as allowed under OAR 340-055-0025(1)(c).

Beneficial Purpose	Class A	Class B	Class C	Class D	Non-disinfected
<b>Irrigation</b>					
Golf courses, cemeteries, Highway medians, industrial and business campuses	Yes	Yes	Yes	No	No
Orchards or vineyards if an irrigation method is used to apply recycled water directly to the soil	Yes	Yes	Yes	No	No
Processed food crops	Yes	Yes	Yes	No	No
Pasture for animals**	Yes	Yes	Yes	Yes	No
Sod**	Yes	Yes	Yes	Yes	No
Firewood, ornamental nursery stock, Christmas trees	Yes	Yes	Yes	Yes	No
Fodder, Fiber, Seed Crops not intended for human consumption	Yes	Yes	Yes	Yes	Yes

The City of Veneta must declare in writing (NPDES monthly discharge monitoring report) what class of disinfection they will use and/or provide prior to release/use of any and all recycled water beneficially land applied each year. Currently the City of Veneta uses all their Class C (and/or Class D) recycled water on city owned property to grow poplar tree and hay grass.

## TREATMENT SYSTEM

Raw sewage collects at one of two pump stations in the City, and is pumped to the treatment plant. Both pump stations are equipped with duplex pumps, and have emergency power available.

At the treatment plant, a pair of screw pumps raises the incoming flow to the headworks elevation and flow continues throughout the plant via gravity. The hydraulic capacity of the plant is 1.25 MGD and is set by the capacity of the screw pumps. Flows in excess of this amount are diverted to a surge basin, which was constructed from one of the old treatment lagoons. The contents of the surge basin are fed back into the plant when influent flows subside.

The headworks consist of a rotary screen, along with a manual bar screen bypass. A splitter box then directs the flow to the two Biolac cells. The Biolac system is a type of extended aeration activated sludge process. Each Biolac cell consists of an aeration basin with an integral clarifier. Solids are wasted as needed to a pair of non-aerated lagoons for further digestion.

Clarified effluent is disinfected using UV light. The plant has two complete UV systems, one dating from the original 2002 construction, and the other recently added. The newest system is typically used, with the 2002 system used for redundancy purposes.

Effluent from the secondary storage lagoon is pumped through an UV system and then pumped to a land-applied site ¼ mile to the north of the treatment plant during the summer months. Effluent flow passes through a flow meter before being pumped over to irrigate a mixture of poplars and hay grown on the fields. Treated effluent is typically sent to the irrigation field from sometime in May to sometime in October, depending on the seasonal conditions. The permit does not prohibit land application outside this window, and so it would be allowed if the other permit conditions are met and approved in writing by the DEQ. Under the existing permit, the effluent must receive at least Class C treatment, but this too is dependent on site use, crop and beneficial uses allowed by rule (See **Attachment 2 – Recycled Water Use Plan Checklist**).

## EFFLUENT CHARACTERISTICS

The Veneta Wastewater Treatment Plant provides secondary wastewater treatment. The treatment processes include extended aeration and clarifier contact followed by UV disinfection. Solids are transferred to a facultative sludge lagoon where they are held for a minimum of one year for stabilization. The plant may meet the testing frequency requirements for Class C or Class D recycled water. Therefore the effluent from the Veneta wastewater treatment plant is classified as either Class C recycled water per the Oregon Administration Rules (OAR) 340-055-0012(5) or Class D recycled water per the (OAR) 340-055-0012(4). The wastewater treatment plant NPDES Permit lists the irrigation system as Outfall 002 for use with Class C recycled water. Discharge of effluent to any other location is not allowed.

Historical flows from the plant are about 0.37mgd during the irrigation season (data from 2008, 2009 and 2011).

A summary of the effluent quality for 2008, 2009 and 2011 is presented below.

**Table 3: Nutrient Loading and Effluent Quality**

	Total P mg/L	TKN mg/L	Ammonia mg/L	Nitrate mg/L
2008	4.75	5.35	3.27	6.2
2009	3.27	5.0	4.26	14.27
2011	1.9	1.5	7.5	0.2

At the seasonal hydraulic loadings for these months (300,000 gallons/day) **See Attachment 3 Water Balance Spreadsheet**, projected effluent total plant available nitrogen application is approximately 25 pounds per acre per day and phosphorus is approximately 7 pounds per acre per year. At current hydraulic loading the total nitrogen applied effluent is just under 100-lb PAN N/acre-yr on a 24 ac site (from *Nitrogen Uptake and Utilization by Oregon State Fertilizer Guide for pasture grass*). No additional fertilizers should be applied.

The effluent is also regularly tested for bacteria, biochemical oxygen demand (BOD) and total suspended solids (TSS).

## RECYCLED WATER MONITORING AND SAMPLING

The City of Veneta produces an average of .246 MGD of recycled water during the irrigation season. We have averaged as much as .377 MDG in a season and have the ability to produce considerably more. The flow of recycled water is metered immediately after the pumps as it is sent to the irrigation site by an electromagnetic flow meter. All recycled water is metered.

Current sampling procedures are to take grab or composite samples just after the UV system, prior to the recycled water flowing into the treated effluent pond. We currently test for the following parameters:

**Table 4: Permit Parameters**

Parameter	Average concentration	Frequency sampled	Sample type	Method
Total Coliforms	1.4 cfu/100ml	As required by permit	Grab	EPA Approved Hach 10029
NH <sub>4</sub> -N	14.20 mg/l	As required by permit	Grab	SM 4500nh3 F
NO <sub>2</sub> -N, NO <sub>3</sub> -N	1.34 mg/l	As required by permit	Grab	EPA 351.3
TKN	14.95 mg/l	As required by permit	Grab	SM 4500no2B, SM 4500no3D
Total P	0.17mg/l	As required by permit	Grab	EPA 365.3
pH	7.3	As required by permit	Grab	SM 4500+H B

The City sends the nutrient testing to an outside lab for testing.

## DISINFECTION AND SAMPLING

**Table 5: Outfall 002 (Land Application) permit limitations**

Other parameters when discharging from Outfall 002	Limitations
E. coli bacteria	Shall not exceed 126 organisms per 100 ml monthly geometric mean. No single sample shall exceed 406 organisms per 100 ml.
pH	Shall be within the range of 6.0 - 9.0
BOD <sub>5</sub> and TSS Removal Efficiency	Shall not be less than 85% monthly average for BOD <sub>5</sub> and TSS.

- (1) Prior to land application of the recycled water, it shall receive at least Class C treatment as defined in OAR 340-55-0012(5) to:
  - (a) Reduce Total Coliform bacteria to 240 organisms per 100 ml in two consecutive samples, and a 7-day median of 23 organisms per 100 ml.
- (2) Prior to land application of the recycled water, it shall receive at least Class D treatment as defined in OAR 340-55-0012(4) to:
  - (a) Must not exceed a 30-day log mean of 126 E coli organisms per 100 ml and 406 E coli organisms per 100 ml any single sample.
- (3) No discharge to state waters is permitted. All recycled water shall be distributed on land for dissipation by evapotranspiration and controlled seepage by following sound irrigation practices so as to prevent:
  - (a) Prolonged ponding of wastewater on the ground surface;
  - (b) Surface runoff or subsurface drainage through drainage tile;
  - (c) The creation of odors, fly and mosquito breeding or other nuisance conditions;
  - (d) The overloading of land with nutrients or organics; and,
  - (e) Impairment of existing or potential beneficial uses of groundwater.

#### Recycled Wastewater Outfall 002

- (1) No discharge to state waters is permitted. All recycled water shall be distributed on land, for dissipation by evapotranspiration and controlled seepage by following sound irrigation practices so as to prevent:
  - a. Prolonged ponding of treated recycled water on the ground surface;
  - b. Surface runoff or subsurface drainage through drainage tile;
  - c. The creation of odors, fly and mosquito breeding or other nuisance conditions;
  - d. The overloading of land with nutrients, organics, or other pollutant parameters; and,
  - e. Impairment of existing or potential beneficial uses of groundwater.
- (2) Prior to land application of the recycled water, it shall receive at least level II treatment as defined in OAR 340-55 to:  
Reduce Total Coliform to 240 organisms per 100 mL in two consecutive samples, and a 7-day median of 23 organisms per 100 mL.
- (3) Irrigation shall conform to the recycled water use plan approved by the Department.

**Table 5.** Recycled water monitoring and sampling sampled taken at the outlet of the disinfection system.

Item or Parameter	Minimum Frequency	Type of Sample
Total Flow (MGD)	Daily	Measurement
Quantity Irrigated (inches/acre)	Daily	Measurement
Flow Meter Calibration	Annually	Verification
pH	2 per week	Grab
Total Coliform	1 per week	Grab
UV Radiation Intensity	Daily	Reading
Nutrients (TKN, NO <sub>2</sub> +NO <sub>3</sub> -N, NH <sub>3</sub> , Total Phosphorus)	Every 90 days	Composite

After being disinfected by the UV system, plant effluent flows into a 10 MG treated effluent pond. The water is then pumped by two vertical turbine pumps to the irrigation site where it is applied to fields and poplar trees with a fixed irrigation system or a cannon irrigator. Irrigation times are controlled by timers.

## **LAND APPLICATION PLAN**

The City of Veneta uses Class C and D recycled water to irrigate an existing Poplar plantation as well as grass fields. Hay is harvested from the fields at least once annually. The pump station and holding cell for the treated effluent is located within the wastewater treatment compound.

The Zoning is mostly Exclusive Farm Use (EFU) with some Highway Commercial (HC). The reuse site is located at 17-06-25-00, TL 100. An adjacent restricted forested area also owned by the City is zoned Parks and Recreation. The only structure on or near the property is a home site owned by the City (88658 Territorial Road). Irrigation is setback a minimum of 100' from the home site and the City's caretaker for the property occupies the dwelling. Due to the amount of wetlands within the adjacent properties, it is unlikely that any future development will occur.

The reuse area is not open to the public and is fenced with limited access. Signs are posted at 100' intervals that say "Attention! Reclaimed Water -Avoid Contact. Do Not Drink" in English and Spanish. Almost the entire perimeter of the fields feature a forested buffer to the property lines.

## **CROPS**

The current crops that are irrigated are pasture grasses and hybrid Poplar trees. These sites are limited by the water consumption needs of the crop and by the nutrient loading rates. For more information on the water consumptive needs and the nitrogen uptake rates see the table below.

**Table 6 Nutrient Requirements**

Crop	Required Nitrogen	Reference
Pasture/ Hay	100-120 lbs/acre	FG 63 OSU
Poplar Tree	75 to 250 lbs/ac	
Other Crops	To be determined	Based on OSU fertilizer guides

The City of Veneta does not currently produce enough water for irrigation to meet the probable need for water on all of the available sites.

Based on the current figures the city will not need to add sites to the recycled water plan until the city more than doubles in size. Our current yearly average irrigation season is 37 Million gallons. We have sites available that can use 350 MG of water every year. The City's average dry weather flow from 2009-2012 was 0.347 MGD. The dry weather flows for the city and the estimated expansion were based on a short period of time when we saw substantial growth in the 2004 Recycled water use plan. Now that the population has stabilized and the boom of 2002 and 2003 is over we can make a more informed estimate of the recycled water needs of the future. We have more than enough acres currently available to last well into the foreseeable future.

## **CROP MANAGEMENT AND NUTRIENT RECYCLING**

The Oregon State Fertilizer guide for pasture grass is about 100 plant available nitrogen-nitrogen /ac year. Based on the amounts of recycled water land applied and the current crop which is poplar trees and pasture grass. This plan allows changes to crop management based on crop type, OSU fertilizer

guides and DEQ beneficial recycled use regulations. Crop management generally consists of harvesting trees as needed and grass hay once to twice per year. Management activities also include inspections to assess weed control, plant health, plant water stress, and plant nutrition. Annual soil sampling should be conducted to track nutrient status; nutrient uptake/remove and soil carry over nitrogen.

**Table 7.** Land application rate of 100 lbs. plant available nitrogen (PAN) /acre/year for crop types listed below unless other wise noted in a site review letter.

West of the Cascade Mountains	
Crop Type	Lbs PAN-N Nitrogen /ac
Tall Fescue	100
Perennial Ryegrass	100
Annual Ryegrass	100
Winter Wheat	120
Poplar tree	150

Soil carry-over nitrogen testing is required two out every three years.

**Table 8.** Land application rates more than 100 lbs. plant available nitrogen (PAN) /acre/year for crop types multiple harvests/cuttings per year.

West of the Cascade Mountains	
Crop Type	Maximum Lbs PAN-N Nitrogen /ac
Tall Fescue	120
Perennial Ryegrass	140
Annual Ryegrass	120
Winter Wheat	120

Soil carry-over nitrogen testing is required ever year.

## IRRIGATION SYSTEM

Water for the irrigation system is pumped from the treated effluent holding pond to the irrigation site by two 25Hp vertical turbine pumps. The pumps are designed to deliver 325 gpm@60 psi. The water travels to the site via an 8" main delivery pipe. Connected to the main line are 6" manifolds for each irrigation zone, as well as a take-off point for the above ground 6" aluminum irrigation pipe that supplies water to the cannon irrigator. There are currently five irrigation zones in use.

The irrigation cannon is used to irrigate approximately 61 acres of grass fields. It delivers approximately 240 gpm@80 psi.

The irrigation for the 20.3 acre Poplar Plantation is applied through standard rotary sprinklers in five separate zones. Each zone is fed from a 6" manifold off of the main line. Zones consist of 2" lateral lines of varying lengths to accommodate the land available. Sprinklers are spaced approximately every 30 feet on each lateral. Lateral lines are spaced 30 feet apart. Please see **Attachment #4 Sprinkler Lay Out**.

The sprinkler heads that are being used are Nelson R10-T with the purple P8 #94 nozzle. Each zone has different operating pressures depending on the size of the zone and number of heads. Under



normal operating pressures, the nozzles will flow between 1.5-1.8 Gallons per minute and operate full circle. Sprinklers are mounted on risers and are approximately 24” above ground.

The irrigated area and specified flow rate of each zone is shown in the following table for the 32.5 acres of Poplar tree plantation.

**Table 9: Irrigation Zones**

<b>Zone</b>	<b>No. of spray heads</b>	<b>Area (acres)</b>	<b>Flow Rate (gpm) per head</b>	<b>Application rate (inches/hr)</b>
1	56	1.95	1.8	0.11
2	147	4.70	1.6	0.11
3	187	5.40	1.5	0.11
4	133	3.86	1.6	0.12
5	165	4.39	1.5	0.12

### **EFFLUENT IRRIGATION PRACTICE**

The City of Veneta’s recycled water system runs primarily during daylight hours. The system does run throughout the night occasionally. The irrigation sites are monitored daily by city personnel for ponding or other issues. Recycled flow readings are taken daily. Typically two zones are run at the same time or one zone plus the irrigation cannon. An operating pressure of 50-60 psi is maintained with a total flow of 400-450 GPM.

Application rates are below the allowable 0.2 in/hr indicated by the soil type (see Soil Characteristics below). Currently the flows and environmental conditions are such that both crops are irrigated early in the season during the high flow month (June). As the weather warms up and the flows reduce to average flows.

### **Start Up**

Prior to start up each year, the entire fixed irrigation system is flushed and inspected for damage. Any needed repairs are made and the end caps are installed. The system is then tested and any nozzle repairs or adjustments are made. Above ground 6” aluminum mainline pipe is installed with connections every 80 feet for the irrigation cannon. The mainline is inspected for leaks. The cannon and traveler are taken out of winter storage and inspected. The irrigator is placed out in the fields and tested.

### **Shutdown**

After the irrigation season ends, the system that feeds the irrigation cannon is drained and the above ground aluminum pipe is picked up and stored on an irrigation trailer for the winter. The irrigator itself is drained and winterized. It is stored under cover for the winter. For the Poplar irrigation, each lateral is drained by pulling the end caps. Each zone manifold is also drained.

### **SYSTEM MAINTENANCE AND CONTINGENCY PROCEDURES**

The City of Veneta uses the manufacturer’s suggested maintenance intervals for the equipment in use at the plant. Most of the equipment at the wastewater plant was set up with redundancy and there are two effluent pumps. If one fails, the other pump can be switched on and continue to operate. All recycled water flows into the 10 MG Treated Effluent Pond before being pumped. In the event of a breakdown or inclement weather, the pumps are shut down and the treated effluent is stored until it can be reused at the irrigation sites.

The City’s wastewater treatment plant is monitored by a SCADA system that features a dialer for calling out personnel in the event of a failure. Components that are monitored include the influent screw conveyors, automatic screen, aeration system, and the ultraviolet disinfection system. The

system will also call out if power to the facility is interrupted or lost. The reuse system is run by hand and is not monitored by SCADA.

The alarm system will go through a list of phone numbers until someone acknowledges the alarm. If no one answers it will start the call list over. Employees take turns being on call for the city and therefore should respond, but if there is no response by on call employees, employees that are not on call will be called. When the alarm system calls it identifies the piece of equipment that has failed.

The City of Veneta has a generator at the wastewater plant that is capable of powering the plant during emergency power failures. It is a 750 Kw diesel generator that automatically starts and runs when grid power is lost or disrupted in any way. With this generator the treatment plant can operate normally. The generator runs a test cycle every week to ensure that it will start up and work properly in the event of a power loss.

## CLIMATE

The climate of the Southern Willamette Valley area is generally dry most of the year with mild dry summers and cold wet winters. Annual precipitation averages 20 inches, occurring mostly in the winter months. Average monthly precipitation and pan evaporation for the study are presented in Table 1. Due to the arid climate and low precipitation, irrigation of crops is critical during the summer months. The irrigation season is generally from May through September.

**Table 10: Average Monthly Weather Data**

Month	Precipitation (in)	Pan Evaporation (in)
January	2.92	0.53
February	2.23	1.02
March	2.00	2.26
April	1.24	3.56
May	1.36	5.29
June	0.87	6.54
July	0.35	8.24
August	0.41	6.78
September	0.82	4.05
October	1.75	1.81
November	2.99	0.76
December	3.42	0.44
<b>Total</b>	<b>20.36</b>	<b>41.28</b>

Notes: a. Data provided by the Western Regional Climate Center, Eugene Station, average for the period of record 1937 to 2003.

## TOPOGRAPHY, SURFACE WATER, and GROUNDWATER

The effluent reuse and the treatment plant are located near the foothills to the Cascades. The soils in the area are generally moderately to highly permeable with no historical flooding or potential flooding. The Oregon Water Resources Department indicates that there are no wells in the general vicinity of the reuse site. Because of this it is difficult to estimate a depth to groundwater.

## DETERMINATION OF ACREAGE REQUIRED FOR RECYCLED WATER USE WATER REQUIRMENTS

A water balance spreadsheet (**Attachment 3**) shows Inputs - Losses = Outputs and was used to determine how many acres the effluent should be applied to. In the case of irrigation water

requirements, the inputs are the amount of water coming from the treatment plant and any additional well makeup water. The losses are water lost during the sprinkler application process and water lost below the root zone of the crop. The outputs are the water used by the crop for transpiration and water which is evaporated from the ground surface. Using the input from the median amount of rainfall for the area in a water balance spreadsheet, minimizing loss of water below the root zone which is not desirable, so it is considered to be zero and using irrigation application efficiency ranges of about 65% to 75% for this type of system was used in this analysis.

Irrigation should only happen when the soil moisture content is above permanent wilting point and below saturation, or at field capacity. Typically permanent wilting point is when the soil water potential has a value of about -1500 kPa (-15 bars), few plants can remove water from soil. Field capacity is where saturated soil has been allowed to drain for several days and the water has drained out of the soil macro pores (-10 to -30 kPa). Irrigation of water is applying water according to crop needs by using the amount of water the soil can store in the plant root zone without losing water and valuable nutrients to rapid draining gravitational water loss. The "hand feel and appearance method" is one of several irrigation scheduling methods that can be used to monitor soil moisture to determine when to irrigate and how much water to apply. Applying too much water causes excessive runoff and/or deep percolation by gravitational water losses (above field capacity). A potential result is the loss of valuable water and nutrients, which may leach into the ground water. Irrigation system operators should use piezometers and soil moisture monitoring to monitor soil water levels and schedule their seasonal irrigations. **See Attachment 5** for technique on estimating soil moisture by hand.

## **Water**

To assure water resources are used properly and no impacts are caused off of the reuse site there are two important areas of operation and monitoring. First, all flow volumes through the treatment plant need to be recorded on at least a weekly basis. Similarly, accumulated volumes of effluent applied to the field need to be recorded at least weekly.

The second important water related factor to monitor is off-site impacts. No surface runoff should ever be observed under the sprinkler system designed in this plan. If any surface movement of applied water is observed, discontinue application and determine the source of the problem. In order to not apply water when a seasonal water table is present, ground water levels will need to be monitored in May, June, September and October.

## **Application Rates and Irrigation Scheduling.**

We irrigate based on the water consumptive rates of the plants not based on the nutrient loading rates. This is because there is a relatively low amount of nutrients in our effluent and we will meet the consumptive rates of the crops for water long before we reach the nutrient requirements of the plants being grown. The City of Veneta tests for pH and coliforms and tests for TKN, NO<sub>3</sub>-N, NO<sub>2</sub>-N, NH<sub>4</sub>-N, and total P as required by the NPDES permit.

For a description of the average natural precipitation quantities in the specific area that the land application sites are in this recycled water use plan. The biosolid land application site currently gets an additional nutrients available in the biosolids, in the future these sites may be irrigated with recycled water with DEQ approval.

## **PUBLIC HEALTH AND ENVIRONMENTAL CONTROLS**

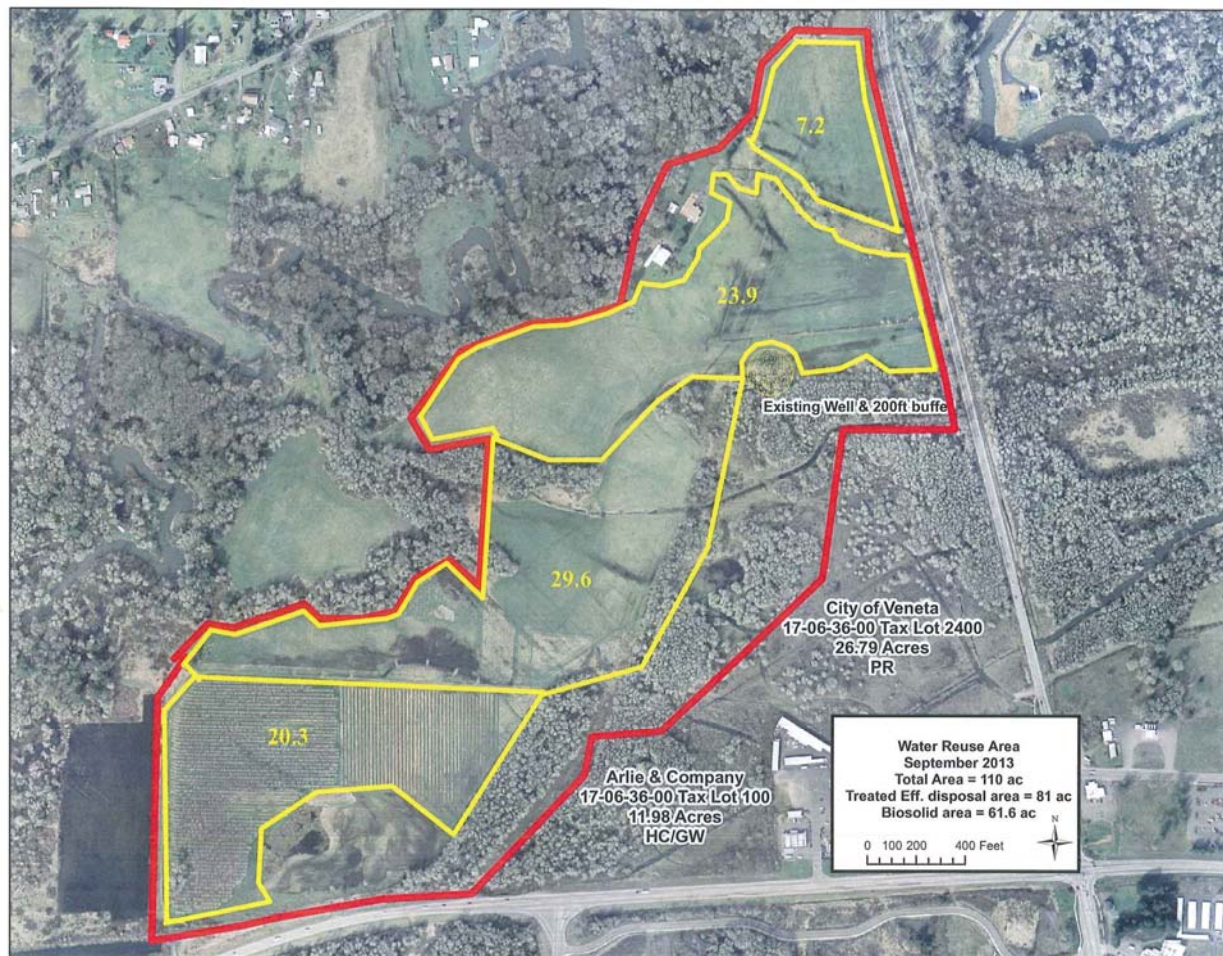
Each beneficial purpose listed in this RWUP should identify potential public health and environmental concerns as well as the measures taken to control adverse effects on public health and the environment. The RWUP must include a description of public and personnel notification

procedures in the reuse area (when required) [OAR 340-055-0025(1)(g)]. For each Beneficial Signage

**Table 11 . Recycled Water Use: Setbacks, Restrictions and Site Management**

<b>Setbacks, Restrictions and Site Management</b>						
<b>Recycle Water Treatment/ Disinfection</b>	<b>Food Preparation / drinking water fountains</b>	<b>Drinking Water Supply</b>	<b>Public road/ public walk way access</b>	<b>Property line (PL)/Site Management (SM)</b>	<b>Access/ Exposure</b>	<b>Aerosol Drift</b>
<b>Class C (Signage required around irrigation site)</b>						
Directly to soil	As approved by DEQ	As approved by DEQ	As approved by DEQ	(P/L) 10'	Site restricted No Public access	N/A
Sprinkler	70'	70'	100'	(P/L) 70': (SM) 3 day irrigation restriction on before harvesting	No Public Access to Site, No direct contact with public	Irrigation system shut off winds of 10 mph or higher*
Cannon	300'	300'	300'	(P/L) 300'	No Public Access to Site, No direct contact with public	Irrigation system shut off winds of 10 mph or higher*
<b>Class D (Signage required around irrigation site)</b>						
Directly to soil	As approved by DEQ	As approved by DEQ	As approved by DEQ	(P/L) 10': (SM) 3 day irrigation restriction on before harvesting	No Public Access to Site Restriction	N/A
Sprinkler	70'	70'	100'	(P/L) 100': (SM) 3 day irrigation restriction on before harvesting	No Public Access to Site Restriction	Irrigation system shut off winds of 10 mph or higher*
Cannon	300'	300'	300'	(P/L) 100': (SM) 3 day irrigation restriction on before harvesting	No Public Access to Site Restriction	Irrigation system shut off winds of 10 mph or higher*

## SITE DESCRIPTION



**Figure 2: Recycled water irrigation area for Veneta facility.**

The land application site is approximately 81 acres including crop area and setbacks. The blue out line shows the land application site. The property is owned and managed by the city. The wastewater treatment plant and the land application site, are zoned Highway Commercial and Exclusive Farm Use. **The irrigation site is exempt from local and state land use restrictions because it is federally owned property.** The properties immediately adjacent to the land application site is zoned EFU.

**Table 12. Existing Recycle Water Use Beneficial Uses**

Name/Owner	Address	Site/ac	Use	Class Recycled water
City of Veneta	17-06-25-00 TL 100	61 ac	Fodder, fiber, seed crops not intended for human consumption, hay field/. pasture	Class D, C, B or A
City of Veneta	17-06-25-00 TL 100	20 ac	Poplar Trees	Class D, C, B or A

**The following are site descriptions of the City of Veneta's current Irrigation sites.**

### **Additional information is in the 2004 Recycled Water Use Plan.**

Site Information for recycled water use Plan

Elevation: Approximately 300 to 400 feet

Mean annual precipitation: 40 to 60 inches

Mean annual air temperature: 52 to 54 degrees F

Frost-free period: 165 to 210 days

Average last frost: April 15

Average first frost: October 29

### **SOIL CHARACTERISTICS**

The soils indicated by the Lane County NRCS soils map are McBee silty clay loam (See **Attachment 6**), in the area of the irrigation site. A summary of the permeability and water holding capacity (from the NRCS soils of Lane County Area, Oregon,) of the soil is:

**Table 13: Soil Characteristics**

Soil Type	Ksat Permeability	Water Holding Capacity
0.5 to 3%OM	(in/hr)	(in)
McBee Sici	0.2	10

Typical McBee soil profile

0 to 1 inches: Slightly decomposed plant material

0 to 24 inches: Silty clay loam AWHC 0.18in/in of soil

24 to 41 inches: Silt loam AWHC 0.18 in/in of soil

19 to 61 inches: Silt loam AWHC 0.18 in/in of soil

The soil's upper 60 inches (treatment) has water holding capacity of about 10 acre inches of water or about 293,263 gallons per acre if fully saturated.

An irrigation rate at or below 0.2 in/hr is within the soil infiltration rate for the McBee slit loam. Desired sizing of irrigation nozzles/sprinkler heads should be determine by looking at the daily application rate needed to maintain the treatment process and storage of this facility.

### **RECORDS AND REPORTING**

#### **REPORTING**

Minimum reporting requirements are also listed in Schedule B of NPDES Permit 102480. Both a monthly monitoring report and an annual summary are required.

The requirements for the monthly report are:

- Monitoring results must be reported on Department approved forms. The reporting period is the calendar month. Reports must be submitted to the appropriate Department office by the 15th day of the following month.
- State monitoring reports must identify the name, certificate classification and grade level of each principal operator designated by the permittee as responsible for supervising the wastewater collection and treatment systems during the reporting period. Monitoring reports shall also identify each system classification as found on Page One of this permit.
- Monitoring reports must include a record of all applicable equipment breakdowns and bypassing.

The City of Veneta submits all required monthly reporting as part of the monthly Discharge Monitoring Report that is sent to DEQ.

The requirements for the annual summary report are:

By January 15<sup>th</sup> of each year, the permittee must submit to the Department an annual report describing the effectiveness of the recycled water system to comply with the approved Recycled Water Use Plan, the rules of Division 55, and the limitations and conditions of this permit applicable to the use of recycled water.

The City of Veneta will continue to submit the annual report by January 15<sup>th</sup> of each year.

## **MONITORING**

Reuse water monitoring will be conducted during the irrigation season to verify that public health, regulatory, and agronomic objectives are met:

- **Reuse requirements:** Total coliform and or E coli will be evaluated once a week during the irrigation season.
- **Effluent quantity:** How much effluent is produced and applied to reuse area.
- **Effluent quality:** A sample of the effluent will be collected quarterly to determine nitrogen and phosphorus loadings to the spray field.
- **A site logbook** will be maintained for the application site. The log will be used to record dates of various crop management operations and other observations made by operators. This record is required so that improvements to the refinement of the management system can be made each year.

A compilation of reuse system data will be completed annually as a basis for reviewing and revising the management plan. The compilation will be reviewed by site operations personnel and submitted to DEQ. This document will include a data review, summary of all monitoring data, evaluation of the success of the system, and listing of improvements that should be made.

## **SIGNS AND NOTIFICATION**

The site has excellent buffers and fences to keep the general public from inadvertently entering the site. This includes signs along the perimeter providing a warning in two languages (“ATTENTION: RECYCLED WATER – AVOID CONTACT - DO NOT DRINK.” “ATENCIO: RECLAMADO DESPERIDICIO DE AGUA – EVITE EL CONTACTO - NO BEBE EL AGUA