

## INFORMATION SHEET

INFORMATION SHEET ORDER R5-2016-XXXX  
SHASTA RENEWABLE RESOURCES LLC  
ANDERSON BIOMASS FACILITY  
SHASTA COUNTY

### Background

Shasta Renewable Resources LLC (here after Discharger), owns the existing cogeneration plant (Facility) located at 6309 Highway 273 in Anderson, Shasta County. The facility is not currently regulated by any Waste Discharge Requirements. The Facility submitted a Report of Waste Discharge (RWD) in 18 October 2010 discharge effluent from the Facility.

The Facility is a wood fired cogeneration plan that utilizes steam to drive a steam turbine that generates approximately 6 megawatts of electrical power, and also provides steam to an existing drying kilns operated by Siskiyou Forest Products.

Facility effluent is obtained from two onsite industrial supply wells, Production Wells No. 1 and 2. The following table summarizes source water character from the Production Wells collected in February and May 2011.

Table 1: Source Water Characterization

Constituent	Units	Concentrations	
		Well #1 5/26/11	Well #2 2/10/11
pH	S.U.	6.71	7.42
Specific Conductance	umhos/cm	369	720
Total Dissolved Solids	mg/L	-	433
Turbidity	NTU	0.51	8.6
Aluminum, Total	ug/L	<26	68.6
Arsenic, Total	ug/L	<0.61	7.5
Cadmium, Total	ug/L	<0.09	1.27
Chromium, Total	ug/L	<0.82	0.7
Copper, Total	ug/L	1.8	6
Manganese, Total	ug/L	430	4,770
Mercury, Total	ug/L	<0.034	<0.07
Nickel, Total	ug/L	4.8	10.1
Selenium, Total	ug/L	<0.36	<0.4
Silver, Total	ug/L	<0.075	<0.10
Thallium, Total	ug/L	<0.081	<0.2
Zinc, Total	ug/L	7.6	11.7

The facility discharges approximately 28,000 gallons per day (GPD) or about 20 gallons per minute (GPM) of effluent that consists of boiler blow down, reverse osmosis (RO) reject, spent bearing cooling water, and cooling tower blow down which is discharged to two onsite infiltration trenches. The effluent character from 2012 to 2014 is summarized in the following table.

Table 2: Effluent Characterization

Constituent		Units	Min.	Max.	Avg.
pH		S.U.	7.25	9.48	8.22
Electrical Conductivity		umhos/cm	171	3,020	788
Total Dissolved Solids		mg/L	180	13,000	1,019
Turbidity		NTU	0.21	51	5.76
Aluminum,	Total	ug/L	<14.0	8,900	716
Arsenic,	Total	ug/L	12.0	18.0	14.3
Cadmium,	Total	ug/L	0.20	2.7	1.30
Chromium,	Total	ug/L	1.80	31	10.13
Copper,	Total	ug/L	1.8	650	182
Manganese,	Total	ug/L	49	3,500	487
Mercury,	Total	ng/L	0.0087	0.048	0.023
Nickel,	Total	ug/L	6.6	7.7	7.2
Selenium,	Total	ug/L	<0.19	1.7	0.64
Silver,	Total	ug/L	<0.10	0.28	0.23
Thallium,	Total	ug/L	<0.10	<1.0	--
Zinc,	Total	ug/L	7.6	700	192

Effluent from the facility is transferred via a 575 foot, 4 inch diameter steel pipe that runs from the facility to the distribution box before being discharged to one of two infiltration trenches or fields. The first infiltration trench consists of a series of 5 infiltration trenches approximately 85 feet long excavated to a depth of approximately 17 feet bgs. Due to low impermeability of underlying soils this field was not sufficient to accommodate wastewater flows. As a result second infiltration trench approximately 100 feet long excavated to a depth of approximately 32 feet bgs was constructed. Effluent can be cycled between these two infiltration trenches, however is generally sent to the newer deeper infiltration trench.

Solid waste generated at the facility consisting of absorbent material and bottom and fly ash is collected and removed from the facility and is either disposed of at permitted disposal facility or is used or repurposed in accordance with the facility's Ash Management and Disposal Plan.

### Groundwater Conditions

Monitoring data collected from Monitoring Wells MW-5 through MW-8 indicates that groundwater beneath the site ranges from 7.65 to 29.78 feet bgs. The groundwater hydraulic gradient beneath the site is to the southeast at approximately 0.004 feet/foot. Regionally shallow groundwater gradient has been reported be generally to the north at approximately 0.04 feet/foot. Groundwater in the area is also influenced locally from leakage from the Anderson Cottonwood Irrigation District (ACID) canal located west of the site and man made drainage channels operated by Siskiyou Forest Products and Sierra Pacific Industries located to the east and southeast of the Facility.

Groundwater quality data has been collected from facility Monitoring Wells since 2011. Monitoring Wells MW-5 through MW-8, and trench piezometer serve as monitoring points for effluent discharges. Monitoring Well MW-8 serves as the up gradient monitoring point. Monitoring Wells MW-5, MW-6, and MW-7 are cross and down gradient monitoring points. The piezometer is located adjacent to the replacement infiltration trench.

Background water quality from Monitoring Well MW-8 has been collected from the facility since late 2013. Water quality data indicates that background water quality is of relatively high quality. The following table summarizes water quality data collected between 2013 and 2015.

Table 3: Background Groundwater Quality

Constituent	Units	Min.	Max.	Avg.	WQO
pH	S.U.	6.48	7.18	6.78	6.5-8.5 <sup>2</sup>
Electrical Conductivity	umhos/cm	220	517	300	900 <sup>2</sup>
Total Dissolved Solids	mg/L	110	330	203	500 <sup>2</sup>
Turbidity	NTU	0.27	1.72	0.74	1.0 <sup>1</sup>
Aluminum, Total	ug/L	<14	59	22	1,000 <sup>1</sup>
Arsenic, Total	ug/L	<0.7	0.75	0.42	10 <sup>1</sup>
Cadmium, Total	ug/L	<0.11	<0.11	-	5 <sup>1</sup>
Chromium, Total	ug/L	<0.50	1.4	0.54	50 <sup>1</sup>
Copper, Total	ug/L	0.84	1.90	1.31	1,300 <sup>1</sup>
Manganese, Total	ug/L	<24	48	-	50 <sup>2</sup>
Mercury, Total	ng/L	47	51	49	50 <sup>3</sup>
Nickel, Total	ug/L	1.5	3.7	2.5	100 <sup>1</sup>
Selenium, Total	ug/L	<0.19	<0.19	-	50 <sup>1</sup>
Silver, Total	ug/L	<0.10	<0.10	-	100 <sup>2</sup>
Thallium, Total	ug/L	<0.10	<0.10	-	2 <sup>1</sup>
Zinc, Total	ug/L	2.7	7.3	4.6	5,000 <sup>1</sup>

<sup>1</sup> California Primary Maximum Contaminant Level.

<sup>2</sup> California Secondary Maximum Contaminant Level.

<sup>3</sup> California Toxics Rule Criteria (USEPA) Sources of Drinking Water.

While Monitoring Well MW-5 and the trench piezometer are useful monitoring points, they are inappropriate compliance wells due to their close proximity to the replacement infiltration trench. Data obtained from these locations are likely to represent near discharge conditions. As such, this Order requires additional downgradient monitoring well(s) to appropriately monitor downgradient groundwater pollutant concentrations.

Groundwater quality data has been collected from facility Monitoring Wells MW-5, MW-6, and MW-7 since 2011. The following table summarizes water quality data between 2011 and 2015. Data collected from Monitoring Well MW-5 and the trench piezometer was not included because it is likely to be more characteristic of effluent discharge due to its proximity to the replacement infiltration trench. Monitoring Wells MW-6 and MW-7 are cross and downgradient monitoring wells. Groundwater quality data for the facility is summarized in the following table.

Average concentrations are below the water quality objectives with the exception of manganese. However the manganese concentrations is total recoverable instead of dissolved. Dissolved phase concentrations are not available. This order requires dissolved phase monitoring. Total concentrations are not appropriate for comparison to Water Quality Objectives.

Table 4: Groundwater Quality (MW-6 and MW-7)

Constituent	Units	Min.	Max.	Avg.	WQO
pH	S.U.	6.31	7.14	6.69	6.5-8.5 <sup>2</sup>
Electrical Conductivity	umhos/cm	43	1,369	445	900 <sup>2</sup>
Total Dissolved Solids	mg/L	140	1,000	363	500 <sup>2</sup>
Turbidity	NTU	0.10	2.21	0.5	1.0 <sup>1</sup>
Aluminum, Total	ug/L	<14	15	7.5	1,000 <sup>1</sup>
Arsenic, Total	ug/L	<0.7	1.3	0.59	10 <sup>1</sup>
Cadmium, Total	ug/L	<0.11	0.86	0.33	5 <sup>1</sup>
Chromium, Total	ug/L	<0.5	2.1	0.5	50 <sup>1</sup>
Copper, Total	ug/L	0.8	4.9	2.23	1,300 <sup>1</sup>
Manganese, Total	ug/L	<0.20	1,900	745	50 <sup>2</sup>
Mercury, Total	ng/L	<0.047	80	16	50 <sup>3</sup>
Nickel, Total	ug/L	1.40	40	12	100 <sup>1</sup>
Selenium, Total	ug/L	<0.19	0.42	0.11	50 <sup>1</sup>
Silver, Total	ug/L	<0.10	<0.10	-	100 <sup>2</sup>
Thallium, Total	ug/L	<0.10	0.23	0.06	2 <sup>1</sup>
Zinc, Total	ug/L	0.85	11	3.63	5,000 <sup>1</sup>

<sup>1</sup> California Primary Maximum Contaminant Level.

<sup>2</sup> California Secondary Maximum Contaminant Level.

<sup>3</sup> California Toxics Rule Criteria (USEPA) Sources of Drinking Water.

### **Basin Plan, Beneficial Uses, and Regulatory Considerations**

The *Water Quality Control Plan for the Sacramento River and San Joaquin River Basins, Fourth Edition, revised June 2015* (hereafter Basin Plan) designates beneficial uses, establishes water quality objectives, contains implementation plans and policies for protecting waters of the basin, and incorporates by reference plans and policies adopted by the State Water Board. The beneficial uses of underlying groundwater as set forth in the Basin Plan are municipal and domestic supply, agricultural supply, industrial service supply and industrial process supply.

### **Antidegradation**

The Discharger has been monitoring groundwater quality at the site since 2011. Based on the data available, it is not possible to determine pre-1968 groundwater quality. Therefore, determination of compliance with Resolution 68-16 for this facility must be based on existing background groundwater quality.

The discharge and the potential for groundwater degradation allowed in this Order is consistent with the Antidegradation Policy since; (a) the limited degradation allowed by this Order will not result in water quality less than the water quality objectives, or unreasonably affect present and anticipated beneficial uses, (b) the Discharger has implemented BPTC to minimize degradation, and (c) the limited degradation is of the maximum benefit to the people of the State.

### **CEQA**

A Mitigated Negative Declaration was certified by the Shasta County Air Pollution Control Board on 10 August 2010 in accordance with the California Environmental Quality Act (CEQA) (Pub. Resources Code, § 21000 et seq.). The Mitigated Negative Declaration describes the project as the reactivation of an existing cogeneration plant

### **Title 27**

Title 27 of the California Code of Regulations (hereafter Title 27) contains regulatory requirements for the treatment, storage, processing, and disposal of solid waste. However, Title 27 exempts certain activities from its provisions. Discharges regulated by this Order are exempt from Title 27 pursuant to provisions that exempt domestic sewage, wastewater, and reuse. Title 27, section 20090 states in part:

The following activities shall be exempt from the SWRCB-promulgated provisions of this subdivision, so long as the activity meets, and continues to meet, all preconditions listed:

(b) Wastewater - Discharges of wastewater to land, including but not limited to evaporation ponds, percolation ponds, or subsurface leachfields if the following conditions are met:

- (1) the applicable RWQCB has issued WDRs, reclamation requirements, or waived such issuance;
- (2) the discharge is in compliance with the applicable water quality control plan; and

(3) the wastewater does not need to be managed according to Chapter 11, Division 4.5, Title 22 of this code as a hazardous waste.

(c) Soil Amendments - Use of nonhazardous decomposable waste as a soil amendment pursuant to applicable best management practices, provided that RWQCBs may issue waste discharge or reclamation requirements for such use.

### **Proposed Order Terms and Conditions**

#### **Discharge Prohibitions, Specifications and Provisions**

The proposed Order would prohibit discharge of wastes to surface waters or surface water drainage courses.

The proposed Order would set a maximum daily flow limit of 28,800 gallons per day (20 gallons per minute).

The proposed Order prescribes groundwater limitations that ensure the discharge does not affect present and anticipated beneficial uses of groundwater.

The proposed Order includes provisions that require the Discharger to submit a Groundwater Monitoring Work Plan, Groundwater Monitoring Well Installation Report, Background Groundwater Quality Study Report, updated Ash Management and Disposal Plan, and install an effluent flow meter.

#### **Monitoring Requirements**

Section 13267 of the California Water Code authorizes the Central Valley Water Board to require the Discharger to submit monitoring and technical reports as necessary to investigate the impact of a waste discharge on waters of the State.

The proposed Order includes effluent, leachfield, groundwater, and ash solids monitoring. This monitoring is necessary to characterize the discharge, evaluate compliance with effluent limitations prescribed by this Order, and evaluate groundwater quality and extent of degradation, if any, caused by the discharge.

#### **Reopener**

The conditions of discharge in the proposed Order were developed based on currently available technical information and applicable water quality laws, regulations, policies, and plans, and are intended to assure conformance with them. The proposed Order would set limitations based on the information provided thus far. If applicable laws and regulations change, or once new information is obtained that will change the overall discharge and its potential to impact groundwater, it may be appropriate to reopen the Order.