INFORMATION SHEET

WASTE DISCHARGE REQUIREMENTS ORDER R5-2013-XXXX
CITY OF IONE AND
GREENROCK RANCH LANDS, LLC
IONE WASTEWATER TREATMENT FACILITY
AMADOR COUNTY

Background

The City of Ione (the "City") has an estimated population of 3,815 with a total of 1,525 Equivalent Dwelling Units (EDUs). The Ione Wastewater Treatment Facility (WWTF) treats domestic wastewater from the City. The WWTF also receives filter backwash water from a water treatment plant operated by Amador Water Agency (AWA) and tertiary filter backwash water from Castle Oaks Water Reclamation Plant (COWRP). In addition, the WWTF accepts Amador Regional Sanitation Agency's (ARSA) secondary effluent from Preston Reservoir for disposal in the WWTF's percolation/evaporation ponds.

The WWTF consists of seven ponds covering approximately 28 acres. Ponds 1 through 4 provide secondary treatment via aeration and settling, and Ponds 5 through 7 provide disposal of un-disinfected effluent via percolation and evaporation. The ponds are constructed in alluvial deposits overlaying a clay formation. There are no engineered liners in Ponds1 through 4. The WWTF is adjacent to Sutter Creek, with the closest pond approximately 100 feet from the creek.

The City has been monitoring shallow groundwater at the WWTF since 2002. The current groundwater monitoring network consists of eight monitoring wells (MW-1, MW-1A, MW-2, MW-3, MW-3A, MW-4, MW-4A and MW-5A) and four piezometers. Groundwater at the site and surrounding properties is very shallow (approximately 1.64 to 22 feet below ground surface).

Planned Changes in the Facility and Discharge

The City has approved several development projects, which will increase the total EDU from current 1,525 to 1,900 EDUs by the year 2020. In order to comply with the 2011 Cease and Desist Order (CDO) and to increase WWTF capacity for future development, the City proposed two phases of WWTF modifications:

Phase I (to be completed by 30 October 2013) will consist of:

a. Constructing new water recycling land application areas (LAAs) on land owned by the Dischargers, including the 11-acre WWTF Field and the 67-acre Town Field (shown on Attachment B);

b. Installing a specific number of additional aerators with specific horsepower in treatment Ponds 1 through 4 to consistently maintain high dissolved oxygen throughout the treatment process;

c. Installing a mixing unit in Pond 5 to reduce the anoxic conditions in the pond (which has already been done);

d. Installing a new disinfection system utilizing sodium hypochlorite injection and a contact chamber; and

e. Sludge removal from Ponds 5 and 6.

Phase II (to be completed in 2015) will consist of:

a. Constructing Pond 8 on the location of the 11-acre WWTF Field. Pond 8 will be clay lined with a capacity of 17 million gallons. It will be used to store un-disinfected effluent during the non-irrigation season; and

b. Adding additional water recycling LAAs totaling 56 acres: the 40-acre Greenrock LAA and the 16-acre COWRP Field;

After completion of Phase I construction, the wastewater treatment and disposal facilities will consist of Ponds 1 through 7, a disinfection system, and the WWTF Field and Town Field LAAs with a total area of 78 acres. In Phase II, storage Pond 8 will be installed and the LAAs will consist of Town Field, COWRP Field, and Greenrock LAA with a total area of 123 acres. The effluent applied to the LAAs will be disinfected secondary-23 recycled water.

Discharge Prohibitions, Specifications and Provisions

The water balances in the RWD demonstrate the facility will have the following storage and disposal capacities for Phases I and II:

Flow Component	Phase I	Phase II
Influent ADWF [1] (MGD)	0.50	0.52
Total effluent flows to the percolation ponds as a maximum flow for any calendar month (MGD)	0.75	0.78
Total annual effluent flows to the percolation ponds (MG)	237	246

[1] Influent flows at headworks in the months of July through September, inclusive.

The 2011 CDO flow limits are 0.55 MGD as an average dry weather influent flow and 0.75 MGD as a monthly average effluent flow for any calendar month. The City states that the current treatment capacity is 0.55 MGD. However, the storage and disposal capacity is less than 0.55 MGD. Therefore, this Order sets initial flow limits equal to the WWTF's capacity after the Phase I upgrades are completed. This Order grants the Executive Officer the authority to increase the flow limits to the Phase II capacity after the Discharger demonstrates that it has satisfactorily completed the proposed Phase II modifications.

The Secondary MCL for iron is 300 µg/L, and background groundwater quality is below this level. However, the average dissolved iron concentrations in downgradient wells MW-2 and

MW-3A ranged from 1,943 to 3,818 µg/L, showing that the discharge has caused dissolved iron in shallow groundwater to exceed the secondary MCL in violation of the Basin Plan. Iron impacts to groundwater are attributable to the presence of degradable organic matter in the wastewater, which depletes oxygen and creates reducing conditions that favor dissolution of iron from the native soil minerals. In order to comply with the 2011 CDO, the City proposes to: a) increase aeration in the treatment ponds, b) increase mixing in Pond 5, and c) remove sludge from the percolation ponds to decrease anoxic conditions that result in iron mobilization to the shallow groundwater. If these measures do not result in reduction of iron in the groundwater, the City plans to remove anoxic soils from the bottom of Pond 5 and add two feet of imported clean soil fill to increase the separation from groundwater.

Based on the planned modifications to the WWTF and proposed LAAs, groundwater quality with respect to iron is expected to improve over time. However, it is not possible to predict when iron concentrations will be reduced to below the Secondary MCL. A companion Cease and Desist Order will include a time schedule that will require the City to complete the proposed facility modifications on a timeline specified by the Board.

The Secondary MCL for manganese is 50 µg/L, and background groundwater quality is below this level. However, the average dissolved manganese concentrations in downgradient wells MW-2 and MW-3A ranged from 3,920 to 5,513 µg/L, which are much greater than the secondary MCL for manganese. The groundwater monitoring results show that the discharge has caused dissolved manganese in shallow groundwater to exceed the secondary MCL. Although manganese may not be present in the WWTF effluent at high concentrations, the reducing conditions in the groundwater mound beneath the WWTF ponds promote the dissolution of manganese that is naturally present in the soil beneath the ponds.

Based on the planned modifications to the WWTF and proposed LAAs, groundwater quality with respect to manganese is expected to improve over time. However, it is not possible to predict when manganese concentrations will be reduced to below the Secondary MCL. A companion Cease and Desist Order will include a time schedule that will require the City to complete proposed facility modifications on a timeline specified by the Board.

The Provisions require that the proposed improvements be completed, as well as the submittal of *Phase I and II Completion Reports,* and a *Groundwater Limitations Compliance Assessment Plan.*

The Monitoring and Reporting Program is designed to verify compliance with flow limits, effluent limitations, and operational requirements of the WDRs.

LF: 3/13/13