

## INFORMATION SHEET

ORDER NO. R5-2009-\_\_\_\_  
AMADOR WATER AGENCY  
PINE GROVE COMMUNITY LEACHFIELD SYSTEM  
AMADOR COUNTY

### **Background**

The Amador Water Agency (Discharger) is planning the Pine Grove Community Leachfield System (CLS) Phase 2 (expansion) that will result in capacity increase. Phase 2 will serve 75 equivalent dwelling units (EDUs) of future residential and commercial developments.

The CLS includes the effluent collection system, and the community leachfield that treats and disposes of wastewater generated by the Pine Grove community in Amador County. The Discharger owns and operates the CLS, and is responsible for the proper design, operation, and maintenance of the CLS.

The construction of the Phase 1 (existing) CLS, was funded using the State Revolving Fund Loan Program and began operation in April 2001. Prior to construction of the CLS, the community of Pine Grove was served by individual waste treatment and disposal systems, many of which were identified as being deficient and placed in areas with poor soils and high groundwater. In April 1997, the Amador County Environmental Health Department's Health Officer issued a declaration stating that failing and inadequate individual waste treatment and disposal systems created a continuing health hazard and posed a potential threat to surface and groundwater quality. Therefore, Pine Grove Community and Amador County were in support of constructing a wastewater collection system and disposal system.

### **Effluent Collection System**

On March 9, 2007, the Discharger submitted a Report of Waste Discharge (RWD) for updating Waste Discharge Requirements (WDRs) to regulate the Phase 1 and Phase 2 CLSs.

The capacity of Phase 1 is 28,700 gpd. Its service area comprises 144 equivalent dwelling units (EDUs) with a 1:1 ratio of residential to commercial properties. As of July 2007, 76 EDUs had been connected to the CLS. Each existing or future residential property connected to Phase 1 has or will have a 1,500-gallon septic tank, which provides primary treatment for the raw sewage discharged from each dwelling.

The Phase 2 leachfield will have a capacity of 15,000 gpd, and will be built in multiple construction efforts on 8.6-acre disposal area south to the Phase 1 leachfield. The 75 EDUs will include 28 units within the proposed Pine Grove Bluffs subdivision and another 47 units elsewhere in Pine Grove, none of which have been constructed yet. The ratio of residential to commercial properties will be 1:4. Each residential property will have a 1,500-gallon septic tank, which will be hooked up to the Phase 2 CLS.

Septic tanks provide primary treatment of the domestic wastewater. Septic tank chambers capture and store solids while they undergo anaerobic decomposition. The exit of the second chamber draws from the tank below the scum and above the sludge, and it is imperative that

regular inspections and cleanings assure that neither the sludge layer nor the scum layer increases to the extent that particulates are scoured and discharged from the tanks. In order to ensure the proper operation of the septic tanks, the Discharger performs annual inspections of septic tanks.

For the Phase 1 and Phase 2 CLS, the effluent from each dwelling septic tank is pumped via a submersible pump to sewer trunk lines installed on either side of Highway 88. The trunk lines manifold into a welded HDPE pipe for delivery to the dosing tanks located near the intersection of State Route 88 and Ridge Road.

### **Leachfield Disposal**

Phase 1 CLS has five 4,000-gallon dosing tanks, and each dosing tank has two dosing siphons. The dose per discharge is approximately 1,740 gallons. This leachfield has 21,300 feet of pressure dose leachlines and is divided into ten individual leachfields. Discharge to each disposal line is controlled by 1-1/2 inch ball valves, which allow equal distribution to all lines despite varying elevation heads. The wastewater application rate is 1.35 gpd per lineal foot of lateral leachline. The disposal trenches are approximately three feet wide by two feet deep.

The Phase 2 will have two 5,000-gallon dosing tanks and each dosing tank will include two dosing siphons. The dosing rate required to each proposed CLS is approximately 225 gpm, and siphons will deliver about 338 gpm. This leachfield will have 10,000 ft of pressure dosed leachlines, which will be divided into four individual leachfields with an application rate of 1.5 gpd per lineal foot of lateral leachline. Each leachfield will have at least one main valve and each individual line will have a throttling valve. New flow splitters are necessary on the Phase 2 area to split upstream of the Phase 1 flow, and flow between new siphons. The disposal trenches are approximately three feet wide by three feet deep.

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

Surface water drainage from the Pine Grove leachfield is to Jackson Creek, a tributary to Dry Creek; Dry Creek flows into the Mokelumne River, downstream of Camanche Reservoir. The beneficial uses downstream of the Camanche Reservoir are agricultural supply; water contact recreation; non-contact water recreation; warm and cold freshwater habitat; migration of aquatic organisms; spawning, reproduction, and/or early development; and wildlife habitat. The Water Quality Control Plan for the Sacramento River and San Joaquin River Basins, Fourth Edition (Basin Plan) designates beneficial uses, establishes water quality objectives, and contains implementation plans and policies for all waters of the Basin. Beneficial uses often determine the water quality objectives that apply to a water body. For example, waters designated as municipal and domestic supply must, at a minimum, meet the California maximum contaminant levels (MCLs) for drinking water. The Basin Plan sets forth the applicable beneficial uses (industrial supply, agricultural supply, and municipal and domestic

supply in this instance) of groundwater, procedure for application of water quality objectives, and the process for and factors to consider in allocating waste assimilation capacity.

### **Antidegradation**

The antidegradation directives of State Water Board Resolution No. 68-16, "Statement of Policy with Respect to Maintaining High Quality Waters in California," or "Antidegradation Policy" require that waters of the State that are better in quality than established water quality objectives be maintained "consistent with the maximum benefit to the people of the State." Waters can be of high quality for some constituents or beneficial uses and not others. Policies and procedures for complying with this directive are set forth in the Basin Plan.

The RWD contained an antidegradation analysis for the expansion. It is appropriate to allow some groundwater degradation as long as it is consistent with the Basin Plan and Resolution No. 68-16 because economic prosperity of local communities and associated industry is of benefit to the people of California. This Order establishes terms and conditions of discharge to ensure that the discharge does not unreasonably affect present and anticipated uses of groundwater and includes groundwater limitations that apply water quality objectives established in the Basin Plan to protect beneficial uses.

### **Treatment Technology and Control**

The Discharger currently provides treatment and control of the discharge that incorporates:

- a. Water tight testing for all site septic tanks;
- b. Installing effluent filters on septic tank discharge plumbing, which will reduce BOD and TSS of effluent to leachfields;
- c. Pressure dosing and rotating of dosed fields, which will optimize equal distribution throughout leachfield and aerobic conditions in trenches;
- d. Minimizing the load to any one location within the leachfield, thereby maximizing treatment/disposal potential of leachfield field;
- e. A Sanitary Sewer Operation, Maintenance, Overflow Prevention and Response Plan;
- f. An operation and maintenance (O&M) manual; and
- g. Certified operators to ensure proper operation and maintenance.

In addition, the slopes of the leachfield range from 18 to 50%, some of which are greater than the maximum 30% slopes allowed by the Basin Plan. For the Phase 1 leachfield, the disposal trench inverts are two feet or less above bedrock, less than the five-foot separation allowed by the Basin Plan. Accordingly, the leachfields may pose slope stability problems when saturated and there is an increased probability that the effluent will fail to meet minimum performance standards (e.g., prevention of pollution) for subsurface disposal systems. These waste

discharge requirements require that the Discharger implement corrective measures to meet water quality objectives and to appropriately maintain and operate the systems.

The existing leachfield design assumes sustained infiltration through the entire bottom and sidewall area of the disposal trenches, which is not a conservative design. It is imperative that extraneous water sources be precluded from entering the effluent collection system and leachfield area.

### **Discharge Prohibitions and Specifications**

The Order allows the flow rate to increase from 28,700 gpd to 43,700 pgd, based on submittal of construction completion reports and approval by the Executive Officer.

Domestic wastewater contains numerous dissolved inorganic waste constituents (i.e., salts, minerals) that together comprise total dissolved solids (TDS). The relevant numerical water quality limit for TDS is 450 mg/l, which is used through Basin Plan procedures to apply the narrative Chemical Constituents water quality objective for the protection of agricultural supply, the beneficial use most sensitive to TDS. The proposed Order contains groundwater limit of 310 mg/l, which was requested by the Discharger and is appropriate for this facility. Most individual salt components can safely be assumed to be proportionately low such that TDS can be an effective indicator in their regulation.

This Order sets a numerical groundwater limitation of 2.2 MPN/100ml for total coliform organisms, and a limitation of nitrate as nitrogen of 10 mg/l to protect the municipal and domestic use of groundwater. These limits are water quality objective for groundwater in the basin plan.

This Order sets an effluent limitation for TDS of 350 mg/l over the source water, which is consistent with the Tulare Lake Basin Plan. Circumstances and conditions with respect to treatment and control of salinity in the Sacramento-San Joaquin River Basin are similar to those of the Tulare Lake Basin. Therefore, the discharge will likely not impair the beneficial uses of groundwater due to increased salinity.

### **Monitoring Requirements**

Section 13267 of the CWC authorizes the Board to require monitoring and technical reports as necessary to investigate the impact of a waste discharge on waters of the state. In recent years there has been increased emphasis on obtaining all necessary information, assuring the information is timely as well as representative and accurate, and thereby improving accountability of any discharger for meeting the conditions of discharge. Section 13268 of the CWC authorizes the assessment of civil administrative liability where appropriate.

The proposed Order requires the Discharger to conduct septic tank, effluent, leachfield, groundwater monitoring. In order to adequately characterize the effluent, the Discharger is

required to monitor for TDS, pH, and other constituents. Monitoring of additional minerals is required on an annual basis.

The Discharger must monitor groundwater for constituents present in the discharge and those constituents that the discharge may cause to be mobilized from soils and which are capable of reaching groundwater and violating groundwater limitations if its treatment and control, and any dependency of the process on sustained environmental attenuation, proves inadequate.

For each constituent listed in the Groundwater Limitations section, the Discharger must, as part of each monitoring event, compare concentrations of constituents found in each monitoring well (or similar type of groundwater monitoring device) to the background concentration or to prescribed numerical limitations to determine compliance.

The Discharger must also monitor Jackson Creek quarterly for TDS, nitrate as N, chloride and total coliform organisms. The purpose of the surface water monitoring is to ensure the leachfield does not degrade surface water and evidence that the Discharger is in compliance with its Order.