

INFORMATION SHEET

ORDER NO. R5-2009- _____
SYSCO FOOD SERVICES OF SACRAMENTO, INC.
WASTEWATER TREATMENT FACILITY
SUTTER COUNTY

Background

Sysco Food Services of Sacramento, Inc. owns and operates a wastewater treatment facility at 7062 Pacific Avenue, Pleasant Grove that treats domestic wastewater and truck wash wastewater that originates at the Sysco facility in Sutter County. The total anticipated wastewater flow rate is approximately 10,000 gallons per day (gpd). The area is not served by a regional wastewater collection and treatment system.

The facility was constructed in 2001 and has discharged wastewater under WDRs Order No. 5-01-204. The Discharger desires to update the facility WDRs because the existing wastewater system is difficult to operate and costly to maintain. A simpler system will provide adequate wastewater treatment and groundwater protection.

The facility is a 47-acre non-processing food distribution center that receives, stores, and redistributes packaged food products. Due to the remote location of the facility, an employee cafeteria is provided that prepares one meal per day. Approximately 120 day-shift and 50 night-shift employees work at the facility year-round. Domestic wastewater flows originate from restrooms, hand wash basins, food preparation, and cleanup. Other than the on-site meal preparation, there is no commercial preparation of food for retail sale or other food processing activities.

The Report of Waste Discharge (RWD) states approximately 10,000 gallons per day will be discharged; however, review of self-monitoring reports submitted by the discharger for 2007 and 2008 indicate the wastewater flow is substantially lower - averaging less than 5,000 gpd. The domestic wastewater portion of the total flow consisted of more than 85-percent of the total flow. The RWD estimates in the future the domestic wastewater portion will make up approximately 68-percent of the total flow. Waste streams are combined and discharged to the wastewater treatment system but the truck wash wastewater is pretreated prior to being discharged.

Existing Wastewater Treatment System

Wastewater discharged to the existing wastewater treatment system is treated using a package plant that includes activated sludge, filtration, and disinfection using ozone. Treated wastewater is presently discharged to subsurface emitters which dose zones within a three acre dispersal area. The Discharger has experienced trouble operating and maintaining the wastewater system and has selected a less sophisticated, but protective of groundwater quality, method to treat the wastewater.

Truck Wash Wastewater System

A truck wash is operated at the facility to wash the exterior of Sysco vehicles. The system uses a mixture of fresh well water and treated recycled truck wash water. Truck wash wastewater is pretreated before being discharged to the facility wastewater treatment system. Pretreatment includes an oil and sand gravity separator, a dissolved air floatation tank, and

dual media filters with disposable oil-absorbent anthracite-bentonite media. The media in the filters is changed approximately once a year.

Replacement Wastewater Treatment System

Because the treatment plant has been difficult and costly for the Discharger to operate, they are proposing a simpler method of treatment. The proposed treatment will continue to include the truck wastewater pretreatment. The combined wastewater flow will be discharged to a 15,000 gallon septic tank, a recirculating gravel filter, a free water surface constructed wetland, and percolation/evaporation (P/E) ponds. Septage from the septic tank and solids from the truck wash facility will be periodically pumped and disposed of by a licensed septage hauler.

The new wastewater treatment system will be in a different location on the facility. As a result, the groundwater monitoring wells that were installed to monitor the existing wastewater treatment system will no longer be useful. Some replacements will be necessary.

Groundwater Conditions

Source water for the site is from an on-site well that provides good quality, but moderately hard water. The Discharger operates small reverse osmosis systems at points of use to correct the hardness. No water softening is performed at the facility.

Groundwater monitoring wells were installed at the former dispersal area. The first groundwater was encountered approximately 21 feet below the ground surface (bgs). Based on the electrical conductivity, the source water (363 umhos/cm) is significantly better than the first encountered shallow groundwater (969 umhos/cm in the background well). The groundwater downgradient of the absorption beds is only slightly lower quality than upgradient of the absorption beds.

Because the Discharger is changing the location of the wastewater disposal area, additional groundwater monitoring wells are required in the order. The existing upgradient well is probably suitable for continued use, the Discharger may elect to properly destroy some of the other site monitoring wells. Such work will be described in a groundwater monitoring workplan prior to implementation.

Soil Conditions

Soil tests performed at the site indicate very low permeability. The report described infiltration rates from 160 minutes/inch to no significant infiltration. A second investigation of soil conditions reported hydraulic conductivity values from approximately 1,100 minutes/inch to 4,000 minutes/inch.

Antidegradation Analysis

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" requires 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. Policy and procedures for complying with this directive are set forth in the Basin Plan.

The Tulare Lake Basin Plan's salt management requirements have been successfully implemented for several decades. The Regional Water Board encourages proactive management to control addition of salt through use, and has established a guideline for allowable incremental salinity increase of 500 umhos/cm over the electrical conductivity of the source water in the Sacramento River and San Joaquin River Basins. When appropriate to assure compliance with a groundwater limitation for any constituent, more restrictive limitations on salt constituents added through use may be established by the Regional Water Board. The electrical conductivity (EC) of the effluent currently averages approximately 989 umhos/cm. This is slightly higher than the Tulare Lake Basin Plan's established effluent limit of 500 umhos/cm over the source water. The higher than usual increase in EC is the result of water conservation practices in the facility and also the lack of diluting wastewater flows such as showers or washing machines typical of domestic (household) wastewater flows. This 500 umhos/cm limit was established after a full evaluation of best practicable treatment and control (BPTC) for discharges in the Tulare Lake Basin. 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.

Degradation of groundwater by some of the typical waste constituents released with discharge from a wastewater system after effective source control, treatment, and control is consistent with maximum benefit to the people of the State provided terms of the Basin Plan are met. Constituents of concern that have the potential to degrade groundwater include salts (primarily EC, sodium, and chloride), nutrients and coliform organisms, as discussed below:

- The RWD included an antidegradation analysis that addressed salinity. It stated the total dissolved solids (TDS) concentration of the treated effluent will be higher than that of the irrigation water used in the surrounding areas, but the loading rate on a per acre basis will be lower than that of adjacent agricultural areas (the calculation includes all of the acres at the Discharger's parcel). The RWD estimates TDS loading rates to be: a minimum of 650 lbs/ac applied to agricultural acres, and a minimum of 366 lbs/ac applied to the Sysco parcel.
- For nutrients such as nitrate, the potential for unreasonable degradation depends on the quality of the treated effluent and nitrification/denitrification processes to convert the effluent nitrogen to nitrate and the nitrate to nitrogen gas before it reaches the water table. Based on the anticipated wastewater effluent quality and the background groundwater quality, nitrate is not expected to degrade groundwater further than the existing background conditions. However, because the constructed wetland will provide the organic material (carbon) needed for denitification, that process will not be in full effect until the wetland has grown enough to produce adequate litter material to support the process. An interim effluent limit is provided in the order.

- For coliform organisms, the potential for exceedance of the Basin Plan's numeric water quality objective depends on the ability of vadose zone soils below the effluent storage/disposal ponds and saturated soils within the shallow water bearing zone to provide adequate filtration. Although disinfection would reduce the potential threat, the use of sodium hypochlorite would also increase the salinity of the effluent and create trihalomethanes. Therefore, at this time there is no reason to require disinfection.

The existing wastewater treatment system is difficult to operate and has routinely exceeded the effluent limits for total suspended solids, nitrate, and ammonia. The limits included in WDRs Order No. 5-01-204 were based on the technology and forecast effluent water quality rather than protective standards for groundwater quality. The revised WDRs will relax some wastewater effluent limitations from the limits contained in WDRs Order No. 5-01-204. The reasons to allow relaxation of the effluent limits are discussed below:

- The effluent limitations presented in Section C Effluent Limitations, allow an annual average limit and a monthly maximum limit. This was included because the Discharger is using a constructed wetland to provide denitification; evapoconcentration of FDS will occur during dry months, and dilution will occur in wet months. Because the shallow groundwater at the site is approximately 1,000 umhos/cm, the annual average effluent limit was set at that value. The monthly effluent limit is slightly higher to allow for the use of a constructed wetland in wastewater treatment.
- A BOD concentration of 20 mg/L in the effluent will be protective of groundwater quality and should not produce odors. At the flow rate of 10,000 gpd, approximately 1.7 pounds of BOD per day will be discharged to the EP Ponds.
- The nitrate concentration limit will be relaxed to an annual average of 10 mg/L which is consistent with the Primary Drinking Water standard set by U.S. EPA and background groundwater concentrations at Well MW-1 (upgradient well). A monthly maximum limit of 12.5 mg/L is included in the order (until 30 June 2010 the limits are 18.5 and 15.0 mg/L). As discussed above, an interim nitrogen limit will be imposed for the first year.
- Total coliform organisms will not be included as a limit in the tentative WDRs because the wastewater will be discharged to percolation ponds. The ponds will be constructed large enough to contain all the wastewater and stormwater that enters the system. Spillage of wastewater from the ponds should not occur. Filtration of pathogens will occur as the wastewater percolates through the fine grained soil materials.
- TDS concentrations in treated wastewater and shallow groundwater are forecast to be approximately equal. Effluent concentrations from the existing treatment system are approximately 600 mg/L and groundwater concentrations are approximately 700 to 724 mg/L (based on MW-1 and MW-4). An annual average limit of 650 mg/L and a monthly maximum of 800 mg/L are included in the WDRs.

Treatment and Control Practices

The Discharger currently provides treatment and control of the discharge that includes: alarm and backup power systems to prevent bypass or overflow, secondary treatment of the wastewater, and an Operation and Maintenance (O&M) manual.

As noted above, it is not clear whether the wastewater treatment plant and P/E ponds pose a significant threat to groundwater quality, and the level of degradation that complies with Resolution No. 68-16 has not been fully evaluated. Therefore, it may be appropriate for the Discharger to implement a salinity control program and evaluate additional BPTC measures if unreasonable groundwater degradation has, or will, occur. If required, completion of these tasks will ensure that BPTC and the highest water quality consistent with the maximum benefit to the people of the State will be achieved.

The order establishes effluent and groundwater limitations for the wastewater system that will not unreasonably threaten present and anticipated beneficial uses or result in groundwater quality that exceeds water quality objectives set forth in the Basin Plan.

Title 27

Title 27, CCR, section 20005 et seq. (Title 27) contains regulations to address certain discharges to land. Title 27 establishes a waste classification system, specifies siting and construction standards for full containment of classified waste, requires monitoring of groundwater and the unsaturated zone for any indication of failure of containment, and specifies closure and post-closure maintenance requirements. Generally, no degradation of groundwater quality by any waste constituent in a classified waste is acceptable under Title 27 regulations.

Discharges of domestic sewage and treated effluent can be treated and controlled to a degree that will not result in unreasonable degradation of groundwater. For this reason, they can be conditionally exempted from Title 27. Treatment and storage facilities for sludge that are part of the wastewater system are considered exempt from Title 27 under section 20090(a), provided that the facilities not result in a violation of any water quality objective. However, residual sludge (for the purposes of the proposed Order, sludge that will not be subjected to further treatment by the wastewater system) is not exempt from Title 27. Solid waste (e.g., grit and screenings) that results from treatment of domestic sewage and industrial waste also is not exempt from Title 27. This residual sludge and solid waste are subject to the provisions of Title 27.

Accordingly, the discharge of effluent and the operation of treatment or storage facilities associated with a wastewater treatment plant can be allowed without requiring compliance with Title 27, but only if the resulting groundwater degradation is in accordance with the Basin Plan.

Effluent Limits

Effluent limits are included in the order. Because the constructed wetland will not be established when initially constructed, interim wastewater limits are provided for the first year

of operation. It is anticipated that wastewater quality will be slightly worse in the first year of operation because the constructed wetland will not have been established. The effluent limitations are protective of groundwater quality with the possible exception of nitrogen concentrations. The higher wastewater concentration limits are only allowed the first year of operation and is not considered to be a significant threat to groundwater quality over that time. The TDS/EC limits are designed to limit the wastewater quality to concentrations that should not impact groundwater quality. Petroleum hydrocarbons, which may be present in untreated truck wash wastewater are required to be non-detectable in the wastewater treatment system effluent. Monthly maximum concentrations and flow weighted annual average concentration limits have been included for TDS, EC, and total nitrogen. The approach will allow evaluation of the wastewater impact to include the variation that will occur due to evapoconcentration and dilution.

The proposed Order prescribes groundwater limitations that implement water quality objectives for groundwater from the Basin Plan. The limitations require that the discharge not cause or contribute to exceedance of these objectives or natural background water quality, whichever is greatest.

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

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