

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
CENTRAL VALLEY REGION

ORDER NO. R5-2006-0127

WASTE DISCHARGE REQUIREMENTS
FOR
CITY OF GRIDLEY
GRIDLEY WASTEWATER TREATMENT PLANT
BUTTE COUNTY

The California Regional Water Quality Control Board, Central Valley Region, (hereafter Central Valley Water Board) finds that:

1. Waste Discharge Requirements (WDR) Order No. 99-089, adopted on 11 June 1999, prescribes requirements for the City of Gridley (hereafter Discharger) for discharge from its wastewater treatment plant (WWTP) to land disposal. The Discharger submitted a Report of Waste Discharge (RWD), dated 11 January 2006, for modification and expansion of its WWTP. The Discharger submitted additional information and the RWD was determined to be complete on 13 June 2006.
2. The WWTP is in Sections 3 and 4, T17N, R3E, MDB&M. The emergency storage ponds are in the old Boga Fernandez land grant in Sections 9 and 10, T17N, R2E, MDB&M.
3. The WWTP treats municipal wastewater for the City of Gridley and currently has a design capacity of 1.05 million gallons per day (mgd). The Discharger receives an estimated 50,000 gallons of septage per month, which is pumped to the WWTP from a pump station at the emergency storage ponds. The Discharger receives up to 100,000 gallons per day (gpd) of pretreated prune and raisin processing wastewater from Rio Pluma Company, Prune Processing Facility, which is regulated by WDR Order No. 99-074.
4. The Discharger proposes to increase the design capacity of the WWTP to 1.7 mgd. The volume and loading rates of septage and prune and raisin processing wastewater accepted at the WWTP are not proposed to increase.
5. Subsurface soils in the percolation pond area consist primarily of fine sandy loam to a depth of 80 inches (USDA Natural Resource Conservation Service Soil Survey of Butte County). The saturated hydraulic conductivity is listed as ranging from 8.0×10^{-4} to 1.4×10^{-2} cm/sec. Soil boring data obtained during the construction of the WWTP show sandy silt to a depth of 17 feet.
6. Groundwater depth in the vicinity of the WWTP averages between 10 to 25 feet below grade, but may be shallower depending upon the water surface elevation of the Feather River. The RWD stated that from 1984 to 2005 the water surface elevation of the Feather River was within 5 feet of the bottom of the percolation ponds on eight occasions. Past data shows a correlation between the water surface elevation of the Feather River and groundwater depth; although, a slow response time is expected for

groundwater elevation changes. Annual rainfall at the WWTP varies between 18 and 53 inches per year, with an average annual rainfall of 18.9 inches.

7. The Discharger installed a piezometer in October 1997. To date, the Discharger has not reported any water present in the piezometer. However, during an inspection of the WWTP on 2 March 2006, Central Valley Water Board staff noted approximately three feet of water in the piezometer.
8. The existing WWTP consists of a headworks (with a 2 inch bar screen), Parshall flume flow meter, treatment ponds (aeration pond and polishing pond), and four percolation ponds. Facilities at the emergency storage area consist of emergency storage ponds and a pump station.
9. The expansion project includes installing a new headworks with a spiral self-cleaning screen with 0.25-inch openings and a magnetic flow meter, replacing the aerators and Solar Bee mixers in the aeration and polishing ponds, and upgrading the piping at the plant. In the aeration pond, the four existing 10 horsepower (hp) aerators will be replaced with four 30 hp aerators. The 10,000 gallons per minute (gpm) Solar Bee mixer in the aeration pond will be replaced with a more reliable brushless motor design. In the polishing pond the two existing 2,500 gpm Solar Bee mixers will be replaced with two 10,000-gpm mixers. The new mixers will be operated 24 hours a day.
10. A domestic supply well is located approximately 150 feet north of the WWTP. The well was drilled to a depth of 70 feet and it supplies potable water to the WWTP and a nearby boat ramp. First encountered groundwater was at 22 feet. The well was sampled on 3 January 2006 and no total and fecal coliform were detected.
11. In 2005, samples were collected to characterize polishing pond effluent quality of the plant at present operating conditions.

<u>Constituent</u>	<u>Average Value</u>
BOD	52.5 mg/L
TSS	35.3 mg/L
TDS	429 mg/L
pH	7.6 pH units
Ammonia	17.0 mg/L
Nitrate as N	<0.02 mg/L

The RWD estimated that the proposed improvements to the plant would improve polishing pond effluent quality as follows.

<u>Constituent</u>	<u>Units</u>	<u>Average</u>	<u>Maximum</u>
BOD	mg/L	<30	<45
TSS	mg/L	<30	<45

Note: Maximum values do not account for potential seasonal algae blooms.

12. The aeration, polishing, and percolation ponds provide 75 acre-feet of storage. Evaporative loss from the treatment and percolation ponds is approximately 73 inches per year. Infiltration rates for the four percolation ponds averaged 0.8 to 1.9 inches per hour.
13. The two emergency storage ponds are adjacent to, and just west of, the Feather River. The emergency storage ponds provide approximately 100 acre-feet of capacity, 26.5 million gallons. This provides enough storage for 15.6 days at an average flow of 1.7 mgd or 6.3 days at a peak flow of 4.2 mgd. Based on soil borings at the site, subsurface soils consist of silty clay and clay. The borings were done to a depth of eight feet and no groundwater was encountered.
14. Prune and raisin processing are defined as categorical industries in 40 Code of Federal Regulations (CFR) Part 407 Subpart F - Canned and Preserved Fruits Subcategory. Pretreatment standards for such new sources are regulated by 40 CFR 407.66, which requires compliance with 40 CFR 403 but does not set numerical effluent limits. The Discharger adopted Chapter 13.06 of the City's Municipal Code, entitled *Industrial Wastewater Regulations*, which authorizes the issuance of industrial wastewater discharge permits and authorizes establishment of numerical limits, and provides for monitoring, compliance and enforcement activities. The Discharger has issued an Industrial User Permit to Rio Pluma, and has established effluent limitations for the pretreated wastewater.
15. The United States Environmental Protection Agency (USEPA), on 16 November 1990, promulgated storm water regulations (40 CFR Parts 122, 123, and 124) which require specific categories of industrial facilities which discharge storm water to obtain NPDES permits and to implement Best Available Technology Economically Achievable (BAT) and Best Conventional Pollutant Control Technology (BCT) to reduce or eliminate industrial storm water pollution.
16. The State Water Resources Control Board (State Water Board) adopted Order No. 97-03-DWQ (General Permit No. CAS000001), on 17 April 1997, specifying waste discharge requirements for discharge associated with industrial activities, excluding construction activities, and requiring submittal of a Notice of Intent (NOI) by industries covered under the permit. Currently, all industrial storm water is retained on-site and percolates into the ground; therefore, a storm water NOI is not required.
17. On 2 May 2006, the State Water Board adopted State Water Board Order No. 2006-0003-DWQ, a Statewide General WDR for Sanitary Sewer Systems. The Discharger shall be subject to the requirements of Order No. 2006-0003-DWQ and any future revisions thereto. Order No. 2006-0003-DWQ requires that all public agencies that currently own or operate sanitary sewer systems apply for coverage under the General WDR.

18. The WWTP lies within the Marysville Hydrologic Unit and the Lower Feather River Hydrologic Area (515.40), as depicted on interagency hydrologic maps prepared by the California Department of Water Resources in 1986. Surface water drainage is to the Feather River.
19. The Central Valley Water Board adopted a Water Quality Control Plan, Fourth Edition, for the Sacramento River Basin and the San Joaquin River Basin, (hereafter Basin Plan) which designates beneficial uses, establishes water quality objectives, and describes an implementation program and policies to achieve those objectives for all waters of the Basin. These requirements implement the Basin Plan.
20. The beneficial uses of the Feather River (from the fish barrier to the Sacramento River) designated by the Basin Plan are municipal and domestic supply; agricultural supply; water contact recreation; canoeing and rafting recreation; noncontact water recreation; warm freshwater habitat; cold freshwater habitat; warm migration; cold migration; warm spawning; cold spawning; and wildlife habitat.
21. The beneficial uses of the groundwater are municipal and domestic supply, agricultural supply, and industrial services and process supply.
22. Water quality sampling of the Feather River was performed on 24 February 2006 and 23 and 31 March 2006. The results showed no significant increases in bacteria levels downstream of the WWTP.
23. State Water Board Resolution No. 68-16 requires that discharge of waste maintain high quality waters of the State until it is demonstrated that any change in quality is consistent with maximum benefits to the people of the State, will not unreasonably affect beneficial uses, and will not result in water quality less than that described in water quality policies (i.e change results in exceedances of water quality objectives).
24. The Central Valley Water Board finds that some degradation of groundwater beneath the emergency storage ponds and WWTP is consistent with Resolution 68-16 provided that:
 - a. The degradation is confined within a specified boundary;
 - b. The Discharger minimizes the degradation by fully implementing, regularly maintaining, and optimally operating best practicable treatment and control (BPTC) measures;
 - c. The degradation is limited to waste constituents typically encountered in municipal wastewater; and
 - d. The degradation does not result in water quality less than that prescribed in the Basin Plan.

25. Some degradation of groundwater by some of the typical waste constituents released with discharge from a municipal wastewater utility after effective source control, treatment, and control is consistent with maximum benefit to the people of California. The technology, energy, water recycling, and waste management advantages of municipal utility service far exceed any benefits derived from a community otherwise reliant on numerous concentrated individual wastewater systems, and the impact on water quality will be substantially less. Degradation of groundwater by constituents (e.g., toxic chemicals) other than those specified in the groundwater limitations in this Order, and by constituents that can be effectively removed by conventional treatment (e.g., total coliform bacteria) is prohibited. When allowed, the degree of degradation permitted depends upon many factors (i.e. background water quality, the waste constituent, the beneficial uses and most stringent water quality objective, source control measures, and waste constituent treatability).
26. Economic prosperity of local communities and associated industry is of benefit to the people of California, and therefore sufficient reason exists to accommodate growth and some groundwater degradation around the WWTP, provided that the terms of the Basin Plan are met.
27. The Discharger does not currently monitor groundwater quality beneath the emergency storage ponds and WWTP. Therefore, it is unknown if the discharge of waste is in compliance with Resolution 68-16. This Order requires the Discharger to install groundwater monitoring wells and begin groundwater monitoring at the WWTP to determine whether the discharge of waste is in compliance with Resolution 68-16.
28. This WWTP provides treatment and control of the discharge that incorporates:
 - a. Technology for secondary treatment of municipal wastewater;
 - b. Alarm and automatic flow diversion systems to prevent system bypass or overflow;
 - c. Certified operators to assure proper operation and maintenance.
29. The WWTP design and effluent disposal program incorporates minimal BPTC measures. In order to determine compliance with Resolution 68-16 it is appropriate to establish a schedule for installation and sampling of groundwater monitoring wells and to formally determine background groundwater concentrations for selected constituents. If groundwater is degraded or there is evidence that the discharge may cause degradation, then the Discharger will be required to evaluate and implement additional BPTC measures for each conveyance, treatment, storage, and disposal component of the system. 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.
30. This Order establishes groundwater limitations for the WWTP 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. This Order contains tasks for assuring that BPTC and the highest water quality consistent with the maximum benefit to the people of the state will be achieved. Accordingly, the discharge is consistent with provisions of Resolution 68-16. Based on the results of the scheduled tasks, the Central Valley Water Board may reopen this Order to reconsider groundwater limitations and other requirements to comply with Resolution 68-16.

31. On 19 September 2006, a Notice of Determination was filed by the Discharger for the Mitigated Negative Declaration (MND) for the expansion project in accordance with the California Environmental Quality Act. The Central Valley Water Board has considered the MND prepared by the Discharger. Compliance with the requirements of this Order will mitigate or avoid environmental effects to water quality.
32. This discharge is exempt from the requirements of *Consolidated Regulations for Treatment, Storage, Processing, or Disposal of Solid Waste*, as set forth in Title 27, CCR, Division 2, Subdivision 1, Section 20005, et seq., (hereafter Title 27). The exemption, pursuant to Section 20090(b), is based on the following:
 - a. The Board is issuing waste discharge requirements,
 - b. The discharge complies with the Basin Plan, and
 - c. The wastewater does not need to be managed according to 22 CCR, Division 4.5, Chapter 11, as a hazardous waste.
33. The Central Valley Water Board has notified the Discharger and interested agencies and persons of its intent to prescribe waste discharge requirements for this discharge and has provided them with an opportunity for a public hearing and an opportunity to submit their written views and recommendations.
34. The Central Valley Water Board, in a public meeting, heard and considered all comments pertaining to the discharge.

IT IS HEREBY ORDERED that Order No. 99-089 is rescinded and the City of Gridley, its agents, successors, and assigns, in order to meet the provisions contained in Division 7 of the California Water Code and regulations adopted thereunder, shall comply with the following:

A. Discharge Prohibitions

1. Discharge of wastes to surface waters or surface water drainage courses is prohibited.
2. By-pass or overflow of untreated or partially treated waste is prohibited.
3. Seepage through the pond dikes is prohibited.

4. Discharge of septage to a location other than the pump station or other facility permitted for septage receiving is prohibited.
5. Discharge of waste classified as hazardous, as defined in Section 2521(a) of Title 23, CCR, Section 2510, et seq., (hereafter Chapter 15), or designated, as defined in Section 13173 of the California Water Code, is prohibited.

B. Discharge Specifications

1. Neither the treatment nor the discharge shall cause a nuisance or condition of pollution as defined in the California Water Code, Section 13050.
2. Prior to completion of the items listed in Finding No. 9, the 30-day average daily dry weather flow shall not exceed 1.05 mgd. After the Discharger submits written documentation that the items in Finding No. 9 have been completed, the 30-day average daily dry weather discharge flow shall not exceed 1.7 mgd.
3. The discharge shall not cause degradation of any water supply.
4. The Discharger shall maintain a minimum 2 feet of freeboard in all ponds at all times. The ponds shall have sufficient capacity to accommodate allowable wastewater flow and design seasonal precipitation and additional inflow and infiltration. Design seasonal precipitation shall be based upon total annual precipitation using a return period of 100 years, distributed monthly in accordance with historical rainfall patterns.
5. The discharge shall be confined to the emergency storage ponds and WWTP.
6. The treatment facilities shall be designed, constructed, operated, and maintained to prevent inundation or washout due to floods with a 100-year return frequency.
7. Ponds shall be managed to prevent breeding of mosquitoes. In particular:
 - a. An erosion control program should assure that small coves and irregularities are not created around the perimeter of the water surface.
 - b. Weeds shall be minimized through control of water depth, harvesting, or herbicides.
 - c. Dead algae, vegetation, and debris shall not accumulate on the water surface.
8. Public contact with wastewater shall be precluded through such means as fences, signs, and other acceptable alternatives.

9. Objectionable odors originating at this facility shall not be perceivable beyond the limits of the emergency storage ponds and WWTP.
10. As a means of discerning compliance with Discharge Specification No. B. 9, the dissolved oxygen content in the upper zone (1 foot) of wastewater in ponds shall not be less than 1.0 mg/L.

C. Sludge Disposal

Sludge, as used in this document, means the solid, semisolid, and liquid residues removed during primary, secondary, or advanced wastewater treatment processes. Solid waste refers to grit and screenings generated during preliminary treatment. Residual sludge means sludge that will not be subject to further treatment at the WWTP. Biosolids refers to sludge that has been treated and tested and shown to be capable of being beneficially and legally used pursuant to federal and state regulations as a soil amendment for agriculture, silviculture, horticulture, and land reclamation activities.

1. Sludge and solid waste shall be removed from screens, sumps, ponds, and tanks as needed to ensure optimal plant operation.
2. Treatment and storage of sludge generated by the WWTP shall be confined to the WWTP property, and shall be conducted in a manner that precludes infiltration of waste constituents into soils in a mass or at concentrations that will violate the Groundwater Limitations of this Order.
3. Any storage of residual sludge, solid waste, and biosolids at the WWTP shall be temporary, and the waste shall be controlled and contained in a manner that minimizes leachate formation and precludes infiltration of waste constituents into soils in a mass or at concentrations that will violate the Groundwater Limitations of this Order.
4. Residual sludge, biosolids, and solid waste shall be disposed of in a manner approved by the Executive Officer and consistent with Title 27. Removal for further treatment, disposal, or reuse at disposal sites (i.e., landfills, WWTPs, composting sites, soil amendment sites) operated in accordance with valid waste discharge requirements issued by the Central Valley Water Board will satisfy this specification.
5. Use of biosolids as a soil amendment shall comply with valid waste discharge requirements issued by the Central Valley Water Board. In most cases, this will mean the General Biosolids Order (State Water Board Water Quality Order No. 2000-10-DWQ, *General Waste Discharge Requirements for the Discharge of Biosolids to Land for Use as a Soil Amendment in Agricultural, Silvicultural, Horticultural, and Land Reclamation Activities*). For a biosolids use project to be

covered by the General Biosolids Order, the Discharger must file a complete Notice of Intent and receive a Notice of Applicability for each project.

6. Use and disposal of biosolids shall comply with the self-implementing federal regulations of Title 40, CFR, Part 503, which are subject to enforcement by the USEPA, not the Central Valley Water Board. If during the life of this Order, the State accepts primacy for implementation of 40 CFR 503, then the Central Valley Water Board may also initiate enforcement where appropriate.
7. Any proposed change in sludge use or disposal practice shall be reported to the Executive Officer at least **90 days** in advance of the change.

D. Groundwater Limitation

1. The discharge, in combination with other sources, shall not cause underlying groundwater to contain waste constituents in concentrations statistically greater than background water quality, except for coliform. For coliform, increases shall not cause the most probable number of total coliform organisms to exceed 2.2MPN/100 mL over any 7-day period.

E. Pretreatment Provisions

1. The Discharger shall implement, as more completely set forth in 40 CFR 403.5, the necessary legal authorities, programs, and controls to ensure that the following incompatible wastes are not introduced to the treatment system, where incompatible wastes are:
 - a. Wastes which create a fire or explosion hazard in the treatment works;
 - b. Wastes which will cause corrosive structural damage to treatment works, but in no case wastes with a pH lower than 5.0, unless the works is specially designed to accommodate such wastes;
 - c. Solid or viscous wastes in amounts which cause obstruction to flow in sewers, or which cause other interference with proper operation or treatment works;
 - d. Any waste, including oxygen demanding pollutants (BOD, etc.), released in such volume or strength as to cause inhibition or disruption in the treatment works, and subsequent treatment process upset and loss of treatment efficiency;
 - e. Heat in amounts that inhibit or disrupt biological activity in the treatment works, or that raise influent temperatures above 40°C (104°F), unless the treatment works is designed to accommodate such heat;

- f. Petroleum oil, nonbiodegradable cutting oil, or products of mineral oil origin in amounts that will cause interference or pass through;
 - g. Pollutants which result in the presence of toxic gases, vapors, or fumes within the treatment works in a quantity that may cause acute worker health and safety problems; and
 - h. Any trucked or hauled pollutants, except at points predesignated by the Discharger.
 2. The Discharger shall implement, as more completely set forth in 40 CFR 403.5, the legal authorities, programs, and controls necessary to ensure that indirect discharges do not introduce pollutants into the sewerage system that, either alone or in conjunction with a discharge or discharges from other sources:
 - a. Flow through the system to the receiving water in quantities or concentrations that cause a violation of this Order, or
 - b. Inhibit or disrupt treatment processes, treatment system operations, or sludge processes, use, or disposal and either cause a violation of this Order or prevent sludge use or disposal in accordance with this Order.
 3. The Discharger shall notify industrial users, subject to Categorical Pretreatment Standards under 40 CFR 403.6 and 40 CFR Chapter I, Subchapter N, of their discharge effluent limits. The limits must be at least as stringent as the pretreatment standards contained in the applicable federal category. The Discharger may develop more stringent technically based local limits if it can show cause. The Discharger shall notify the Central Valley Water Board if an industrial user violates its discharge effluent limits to the collection system

F. Provisions

1. The Discharger may be required to submit technical reports as directed by the Executive Officer.
2. The Discharger shall comply with attached Monitoring and Reporting Program No. R5-2006-0127, which is a part of this Order, and any revisions thereto as ordered by the Executive Officer.
3. The Discharger shall comply with all the items of the "Standard Provisions and Reporting Requirements for Waste Discharge Requirements," dated 1 March 1991, which are a part of this Order. This attachment and its individual paragraphs are referred to as "Standard Provision(s)."

4. The Discharger shall use the best practicable cost-effective control technique(s) including proper operation and maintenance, to comply with discharge limits specified in this Order.
5. The Discharger shall provide certified wastewater treatment plant operators in accordance with Title 23 of the California Code of Regulations, Division 3, Chapter 26.
6. The Discharger shall report to the Central Valley Water Board any toxic chemical release data it reports to the State Emergency Response Commission within 15 days of reporting the data to the Commission pursuant to section 313 of the "Emergency Planning and Community Right to Know Act of 1986."
7. The Discharger shall not allow pollutant-free wastewater to be discharged into the wastewater collection, treatment, and disposal system in amounts that significantly diminish the system's capability to comply with this Order. Pollutant-free wastewater means rainfall, groundwater, cooling waters, and condensates that are essentially free of pollutants.
8. The Discharger shall maintain coverage under State Water Board Order No. 2006-0003-DWQ for operation of its wastewater collection system.
9. The Discharger shall perform the following water quality studies, and implement the required monitoring program according to the following time schedule. All reports shall be submitted pursuant to Section 13267 of the California Water Code, and shall be prepared by a California Registered Civil Engineer, except groundwater workplans and studies, which shall be prepared by a California Registered Civil Engineer experienced in such studies, a Registered Geologist, or a Certified Engineering Geologist.
 - a. **Within 90 days of the adoption of this Order**, the Discharger shall submit a workplan for characterization of groundwater quality. The workplan shall describe the installation of monitoring wells to allow evaluation of groundwater quality upgradient and downgradient of the percolation ponds. Each monitoring well shall be constructed to yield representative samples from the uppermost layer of the uppermost aquifer and to comply with applicable well standards.
 - b. **Within 150 days of the adoption of this Order**, the Discharger shall submit a Monitoring Well Installation Report that describes the installation of groundwater monitoring wells. The report should include: well construction, well development, well surveying, water sampling, and soil sampling.

- c. **Within 1 year of the adoption of this Order**, the Discharger shall submit a Groundwater Quality Study Report for each monitoring well. For each groundwater monitoring parameter/constituent identified in the Monitoring and Reporting Program, the report shall present a comparison of groundwater quality of upgradient and downgradient monitoring wells relative to the WWTP.
 - d. **Within 90 days of the adoption of this Order**, the Discharger shall submit a workplan describing the installation of piezometers in the area of the percolation ponds.
 - e. **Within 150 days of the adoption of this Order**, the Discharger shall submit a Piezometer Installation Report that describes the installation of piezometers.
 - f. **Within 1 year of the adoption of this Order**, the Discharger shall submit an analysis of the septage receiving capacity of the City of Gridley ponds. The analysis shall report on the amount of septage that is received each year and the capacity of the treatment and percolation ponds to accept septage while complying with the requirements of this Order. A flow meter should be installed at the pump station to determine the amount of septage discharged per month. If septage in excess of the pond's capacity is being accepted, the Discharger shall submit a plan, with a time schedule, to decrease its septage receiving to within the system's capacity. The Discharger shall also provide a plan to assure that no more than the amount of septage that the ponds are capable of accepting is received.
10. The Discharger shall report promptly to the Central Valley Water Board any material change or proposed change in the character, location, or volume of the discharge.
 11. In the event of any change in control or ownership of land or waste discharge facilities presently owned or controlled by the Discharger, the Discharger shall notify the succeeding owner or operator of the existence of this Order by letter, a copy of which shall be immediately forwarded to this office.
 12. The Discharger must comply with all conditions of this Order, including timely submittal of technical and monitoring reports as directed by the Executive Officer. Violations may result in enforcement action, including Central Valley Water Board or court orders requiring corrective action or imposing civil monetary liability, or in revision or rescission of this Order.
 13. A copy of this Order shall be kept at the discharge facility for reference by operating personnel. Key operating personnel shall be familiar with its contents.

14. Recycled water for spray irrigation shall be subject to the approval of the Executive Officer and shall comply with 22 CCR, Division 4.
15. The Board will review this Order periodically and may revise requirements when necessary.

I, PAMELA C. CREEDON, Executive Officer, do hereby certify the foregoing is a full, true, and correct copy of an Order adopted by the California Regional Water Quality Control Board, Central Valley Region, on 8 December 2006.

PAMELA C. CREEDON, Executive Officer

JMM: sae
12/13/06

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
CENTRAL VALLEY REGION

MONITORING AND REPORTING PROGRAM NO. R5-2006-0127

FOR
CITY OF GRIDLEY
GRIDLEY WASTEWATER TREATMENT FACILITY
BUTTE COUNTY

This Monitoring and Reporting Program (MRP) is required pursuant to California Water Code Section 13267. The Discharger shall not implement any changes to this MRP unless and until the Central Valley Water Board adopts or the Executive Officer issues a revised MRP. Changes to sample locations shall be established with concurrence of Central Valley Water Board staff. All samples should be representative of the volume and nature of the discharge or matrix of material samples. The time, date, and location of each sample shall be recorded on the sample chain of custody form. All analyses shall be performed in accordance with Standard Provision, Provisions for Monitoring (1 March 1991). The results of analyses performed in accordance with specified test procedures, taken more frequently than required at the locations specified in this MRP, shall be reported to the Central Valley Water Board and used in determining compliance.

INFLUENT MONITORING

The Discharger shall report the following regarding influent to the WWTP:

<u>Constituent</u>	<u>Units</u>	<u>Type of Sample</u>	<u>Sampling Frequency</u>
Flow	gallons/day	Continuous	Daily
BOD ₅	mg/L	Grab	Monthly
Total Suspended Solids	mg/L	Grab	Monthly

POLISHING POND EFFLUENT MONITORING

Polishing pond effluent samples shall be collected before discharge to any percolation pond and shall be representative of the volume and nature of the discharge. Monitoring shall include the following:

<u>Constituent</u>	<u>Units</u>	<u>Type of Sample</u>	<u>Sampling Frequency</u>	<u>Reporting Frequency</u>
BOD ₅	mg/L	Grab	Monthly	Monthly
Total Dissolved Solids	mg/L	Grab	Monthly	Monthly
Total Suspended Solids	mg/L	Grab	Monthly	Monthly
pH	pH units	Grab	Monthly	Monthly
Standard Minerals ¹	mg/L	Grab	Annually	Annually

¹Standard minerals shall include, at minimum, the following elements/compounds: boron, calcium, chloride, fluoride, manganese, magnesium, iron, phosphate, potassium, sodium, sulfate, total alkalinity (including alkalinity series), and hardness.

TREATMENT AND PERCOLATION POND MONITORING

The Discharger shall report the following regarding the treatment and percolation ponds:

<u>Constituent</u>	<u>Units</u>	<u>Type of Sample</u>	<u>Sampling Frequency</u>
Liquid Depth and Freeboard	feet	Visual	Monthly
Flow to Ponds	gallons/day	Continuous	Daily
Dissolved Oxygen	mg/L	Grab	Monthly

The treatment and percolation ponds (at the treatment plant) shall be inspected monthly to check the following:

- a. Seepage through pond dikes
- b. Excessive odors or other nuisances
- c. Excessive weed growth in pond(s)

EMERGENCY STORAGE POND MONITORING

The Discharger shall report the following regarding the emergency storage ponds:

<u>Parameter</u>	<u>Units</u>	<u>Type of Sample</u>	<u>Frequency</u>
Liquid Depth and Freeboard	feet	Visual	Monthly

The emergency storage ponds shall be inspected quarterly to check the following:

- a. Seepage through pond dikes
- b. Excessive odors or other nuisances
- c. Excessive weed growth in pond(s)

SEPTAGE RECEIVING MONITORING

The monthly volume of septage accepted by the wastewater treatment plant shall be reported monthly.

PIEZOMETER MONITORING

The piezometers shall be monitored for the presence of groundwater. If groundwater is found, the following shall be recorded:

<u>Parameter</u>	<u>Units</u>	<u>Type of Sample</u>	<u>Frequency</u>
Depth to groundwater	To 0.01 foot (hundredths)	Measured	Monthly ¹
Groundwater Elevation	Above mean sea level to 0.01 foot (hundredths)	Calculated	Monthly ¹

¹Quarterly after two years of submittal of required information.

GROUNDWATER MONITORING

Prior to collecting samples and after measuring the water level, each monitoring well shall be adequately purged to remove water that has been standing within the well screen and casing that may not be representative of formation water. The wells shall be analyzed for the following constituents:

<u>Constituent/Parameter</u>	<u>Units</u>	<u>Type of Sample</u>	<u>Frequency</u>
Depth to groundwater	To 0.01 foot (hundredths)	Measured	Monthly ¹
Groundwater Elevation	Above mean sea level, to 0.01 foot (hundredths)	Calculated	Monthly ¹
pH	pH units	Grab	Monthly ¹
Total Coliform	MPN/100mL	Grab	Monthly ¹
Nitrate as N	mg/L	Grab	Monthly ¹
Electrical Conductivity	umhos/cm	Grab	Monthly ¹
Total Dissolved Solids	mg/L	Grab	Monthly ¹
Standard Minerals ²	mg/L	Grab	Annually

¹Quarterly after two years of submittal of required analyses

²Standard minerals shall include, at minimum, the following elements/compounds: boron, calcium, chloride, fluoride, manganese, magnesium, iron, phosphate, potassium, sodium, sulfate, total alkalinity (including alkalinity series), and hardness.

SEWAGE COLLECTION PIPELINE MONITORING

Yearly, the pipeline on the banks of the Feather River shall be visually inspected. **Every five years**, divers shall inspect the portion of pipeline that is submerged in the Feather River. The inspections should note erosion around the pipeline, leaking pipe joints, and overall condition of the pipeline (including estimated wall thickness). A report summarizing each inspection shall be submitted to the Central Valley Water Board.

PRETREATMENT MONITORING PROGRAM

The Discharger shall submit by **30 January of each year** an annual report to the Central Valley Water Board describing the Discharger's pretreatment activities during the previous calendar year including analyses required by the Discharger. The report shall include compliance history of significant industrial users (SIUs), including categorical industrial users, which discharge waste to the Discharger. If a SIU has not been in compliance for the entire calendar year, the Discharger shall include the reasons for the noncompliance and state how and when the SIUs shall comply with pretreatment conditions and requirements.

If any SIU is in noncompliance, the Discharger shall report such incidents of noncompliance to the Board quarterly. If all SIUs are in compliance, a statement certifying such shall be submitted quarterly.

REPORTING

In reporting the monitoring data, the Discharger shall arrange the data in tabular form so that the date, the constituents, and the concentrations are readily discernible. The data shall be summarized in such a manner to illustrate clearly the compliance with waste discharge requirements.

Monitoring reports shall be submitted to the Central Valley Water Board **within 30 days** of the end of the monitoring period (monthly, quarterly, annual), i.e. March and 1st quarter monitoring due 30 April.

Upon written request of the Central Valley Water Board, the Discharger shall submit an annual report by **30 January of each year**. The report shall contain both tabular and graphical summaries of the monitoring data obtained during the previous year. In addition, the Discharger shall discuss the compliance record and the corrective actions taken or planned that may be needed to bring the discharge into full compliance with the waste discharge requirements.

The Discharger shall implement the above monitoring program as of the date of this Order.

Ordered by:

PAMELA C. CREEDON, Executive Officer

8 December 2006

(Date)

JMM: sae
12/13/06

INFORMATION SHEET

ORDER NO. R5-2006-0127
CITY OF GRIDLEY
GRIDLEY WASTEWATER TREATMENT PLANT
BUTTE COUNTY

Background

The City of Gridley (hereafter Discharger) owns and operates a wastewater treatment plant (WWTP) in Sections 3 and 4, T17N, R3E, MDB&M. The facility is currently operated under Waste Discharge Requirements (WDR) Order No. 99-089. The WWTP is on the east bank of the Feather River, approximately 3.3 miles east of the City of Gridley. The Discharger submitted a Report of Waste Discharge (RWD) on 11 January 2006 to expand the WWTP capacity from 1.05 million gallons daily (mgd) to 1.7 mgd. The WWTP provides primary and secondary treatment in two aerated ponds and discharges effluent to four unlined percolation ponds.

The existing WWTP consists of headworks with flow meter, an aeration pond, a polishing pond, and four percolation ponds. The headworks consist of a 2-inch bar screen in an open channel configuration. The aeration pond has four 10 horsepower (hp) aerators and a 10,000 gallons per minute (gpm) Solar Bee mixer. Wastewater is treated in the aeration pond before being transferred to the polishing pond. The polishing pond is divided into two cells by a concrete baffle. The first cell is used as a partial mixing basin, and the second cell serves as a polishing/settling basin. The first cell has a 2,500 gpm Solar Bee mixer and provides total aeration. The second cell has a 2,500 gpm Solar Bee that only provides surface aeration. This allows for benthic decomposition and an odor cap on cell two. Clarified effluent from the polishing pond is directed to one or more of the four percolation ponds. The percolation ponds are unlined and provide 62.02 acre-feet of storage. The Discharger also operates two emergency storage ponds on the west bank of the Feather River, approximately 1 mile south of the WWTP. The emergency storage ponds have a capacity of 100 acre-feet (26.5 million gallons).

The WWTP accepts wastewater from Rio Pluma Prune Processing Facility. Rio Pluma is currently permitted through the Central Valley Regional Board to discharge up to 100,000 gallons per day of pretreated prune and raisin processing wastewater to the WWTP. The amount of processing wastewater that Rio Pluma is allowed to discharge will not increase. The Discharger adopted Chapter 13.06 of the City's Municipal Code, entitled *Industrial Wastewater Regulations*. The Chapter was patterned after the USEPA Model Pretreatment Ordinance. The Chapter authorizes the issuance of industrial wastewater discharge permits, authorizes establishment of numerical limits, and provides for monitoring, compliance, and enforcement activities. The Discharger has issued an Industrial User Permit to Rio Pluma, and has established effluent limitations for acceptance of the pretreated wastewater.

Under WDR Order No. 99-089, the Discharger is required to implement pretreatment provisions. The provisions require the Discharger to implement, as set forth in 40 CFR 403.5, the necessary legal authorities, programs, and controls to ensure that wastes are not introduced to the treatment system which inhibit or disrupt treatment processes, treatment system operations, or sludge processes.

WWTP Expansion Project

The Discharger submitted a RWD on 11 January 2006 to increase the daily average dry weather flow from 1.05 mgd to 1.7 mgd. The RWD indicated that wastewater flows have been increasing at an annual rate of approximately 7.5% per year since 1997. The Discharger estimates that wastewater flows will increase at a faster rate in the next 10 years due to 507 residential units and developments with approved tentative subdivision maps. The developments are expected to move into the construction phase during the 2006-2010 time frame.

The WWTP Expansion Project include:

1. Replacement of the current headworks with a new headworks facility that will consist of a spiral self-cleaning screen with 0.25-inch openings. The screen will be installed in a new concrete influent channel. A bypass channel with a manually cleaned 2-inch bar screen will also be provided to allow screening of influent to continue while the self-cleaning screen receives maintenance or is clogged.
2. Installation of a new magnetic flow meter upstream of the new headworks facility to measure influent flow. The flow meter will be equipped with an electronic chart recorder.
3. Modification of the aeration pond aerators and Solar Bee mixer. The four existing 10 hp aerators and the 10,000-gpm Solar Bee mixer will be replaced with four 30 hp aerators and a new 10,000 gpm Solar Bee mixer with a more reliable brushless motor design. The Solar Bee will be operated 24 hours a day and will have a long suction hose to draw water from the bottom.
4. Modification of the polishing pond Solar Bee mixers. The two existing 2,500-gpm Solar Bee mixers will be replaced with two new 10,000 gpm mixers. The first mixer will be fitted with a long suction hose to perform deep mixing and aeration to support additional BOD removal. The second mixer will be configured for surface aeration only to aid solids settling.
5. Upgrades to the interconnecting process piping and pond inlets/outlets to provide adequate hydraulic capacity for peak flows while maintaining 2 feet of freeboard in both the aeration and polishing ponds.

Polishing Pond Effluent Disposal

The polishing pond effluent, under current treatment conditions, was analyzed and the results are as follows:

**TABLE 1
 EXISTING POLISHING POND EFFLUENT QUALITY**

<u>Constituent</u>	<u>Units</u>	<u>6/16/2005</u>	<u>11/11/2005</u>	<u>11/18/2005</u>	<u>11/30/2005</u>	<u>Average</u>
pH	pH units	7.6	--	--	--	7.6
TDS	mg/L	420	431	446	419	429
TSS	mg/L	39	36	27	39	35.3
BOD	mg/L	30	52	57	71	52.5
Ammonia	mg/L	--	18.3	15.3	17.4	17.0
Nitrate as N	mg/L	--	<0.02	<0.02	<0.02	<0.02

With the proposed modifications to the existing aeration and polishing ponds, the RWD estimated that BOD and TSS concentrations in the polishing pond effluent would decrease to the following levels:

**TABLE 2
 POLISHING POND EFFLUENT QUALITY AFTER WWTP UPGRADED**

<u>Constituent</u>	<u>Units</u>	<u>Average</u>	<u>Maximum</u>
BOD	mg/L	<30	<45
TSS	mg/L	<30	<45

Note: Maximum values do not account for potential seasonal algae blooms.

The RWD included a water balance and capacity analysis to determine the land and storage requirements for polishing pond effluent disposal. Average daily flow to the plant in 2005 ranged from 0.69 mgd to 1.42 mgd. Anticipated flows to the WWTP are: 0.97 mgd in 2010, 1.3 mgd in 2015, and 1.7 mgd in 2025. The RWD states that the water balance indicated that the existing WWTP provides adequate capacity to maintain a minimum of 4 feet of freeboard in all six ponds, while storing all anticipated inflows at a polishing pond effluent inflow rate of 2.0 mgd, assuming the percolation capacity of the percolation ponds is 150 feet per year (3.07 gallons per day per square foot). Double-ring infiltrometer tests were performed during April and May 2006 on the four percolation ponds to determine infiltration rates. The percolation capacity varied from 1.35 to 74.81 gallons per day per square foot. The average infiltration rates are presented below.

**TABLE 3
 AVERAGE INFILTRATION RATES FOR PERCOLATION PONDS**

<u>Pond</u>	<u>Average Infiltration Rate (inch/hour)</u>
3	1.5
4	1.7
5	0.8
6	1.9

Note: Average infiltration rate excludes a test location in Pond 3 and Pond 5 (low and high values, respectively).

Geology and Soils

Subsurface soils in the percolation pond area consist primarily of fine sandy loam to a depth of 80 inches. Soil borings indicated the presence of silty sand to a depth of 17 feet. The RWD reported the saturated hydraulic conductivity ranging from 8.0×10^{-4} to 1.4×10^{-2} cm/sec. Based on soil boring data at the site, the emergency storage ponds are underlain with silty clay and clay to a depth of 8 feet.

Surface Hydrology and Groundwater

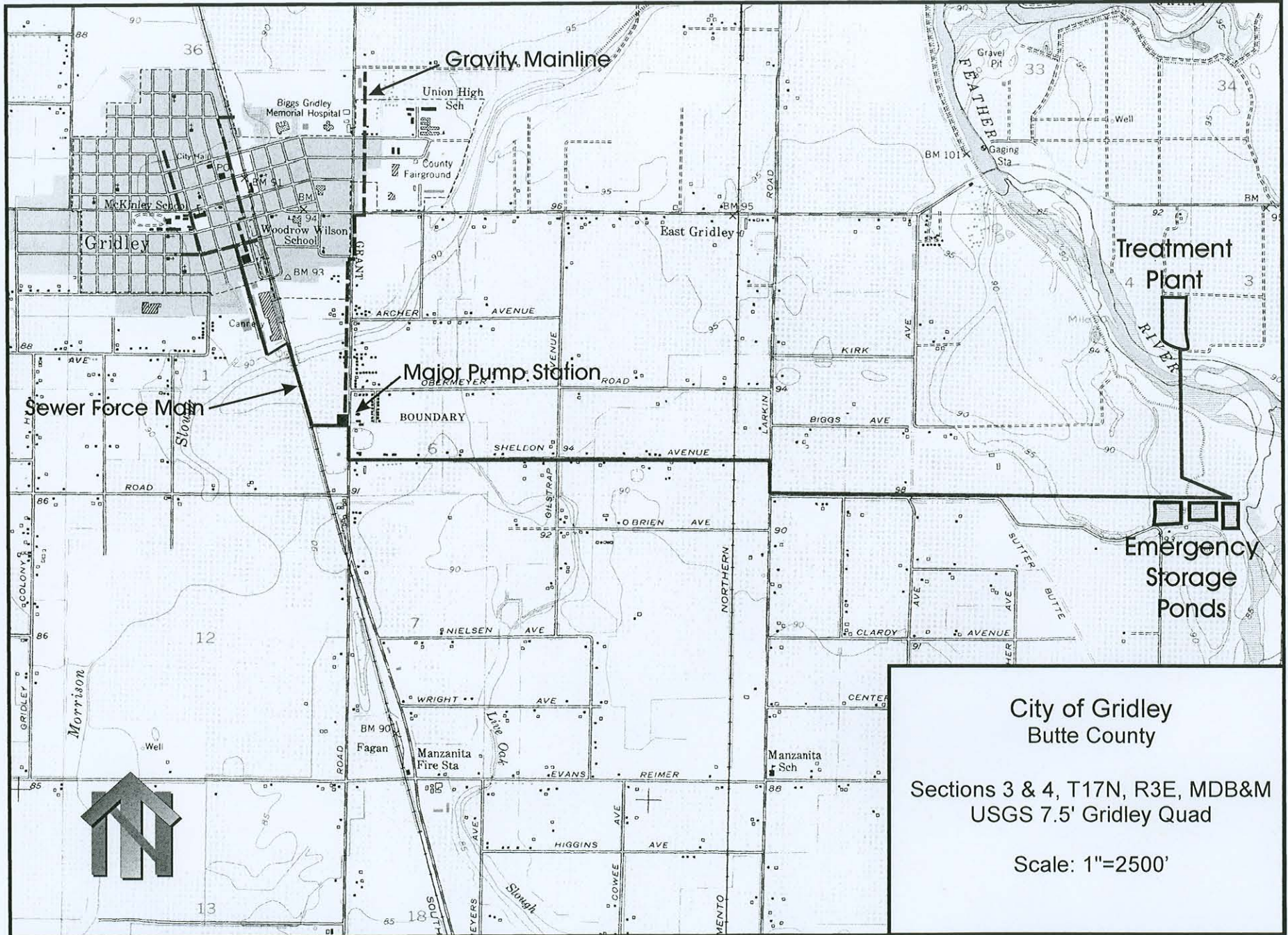
The Feather River is approximately 300 feet west of the percolation ponds. Average annual rainfall at the WWTP varies between 20 to 50 inches per year. Groundwater depth in the vicinity of the WWTP averages between 10 to 25 feet below grade. Groundwater may be shallower depending upon the surface water level of the Feather River. The RWD reported that from 1984 through 2006, the water surface elevation of the Feather River was within 5 feet of the bottom of the percolation ponds on eight occasions.

In October 1997, a piezometer was installed near percolation Pond No. 6. To date, the Discharger has not reported any water present in the piezometer. On 2 March 2006, Central Valley Water Board staff inspected the WWTP and measured approximately 3 feet of water in the piezometer. The total depth of the piezometer was measured by hand to be approximately 11 feet 2 inches deep. At the time of the inspection, the Feather River was extremely high due to large amounts of rainfall in the days preceding the inspection. It is likely that the Feather River water surface elevation influences the surrounding groundwater table.

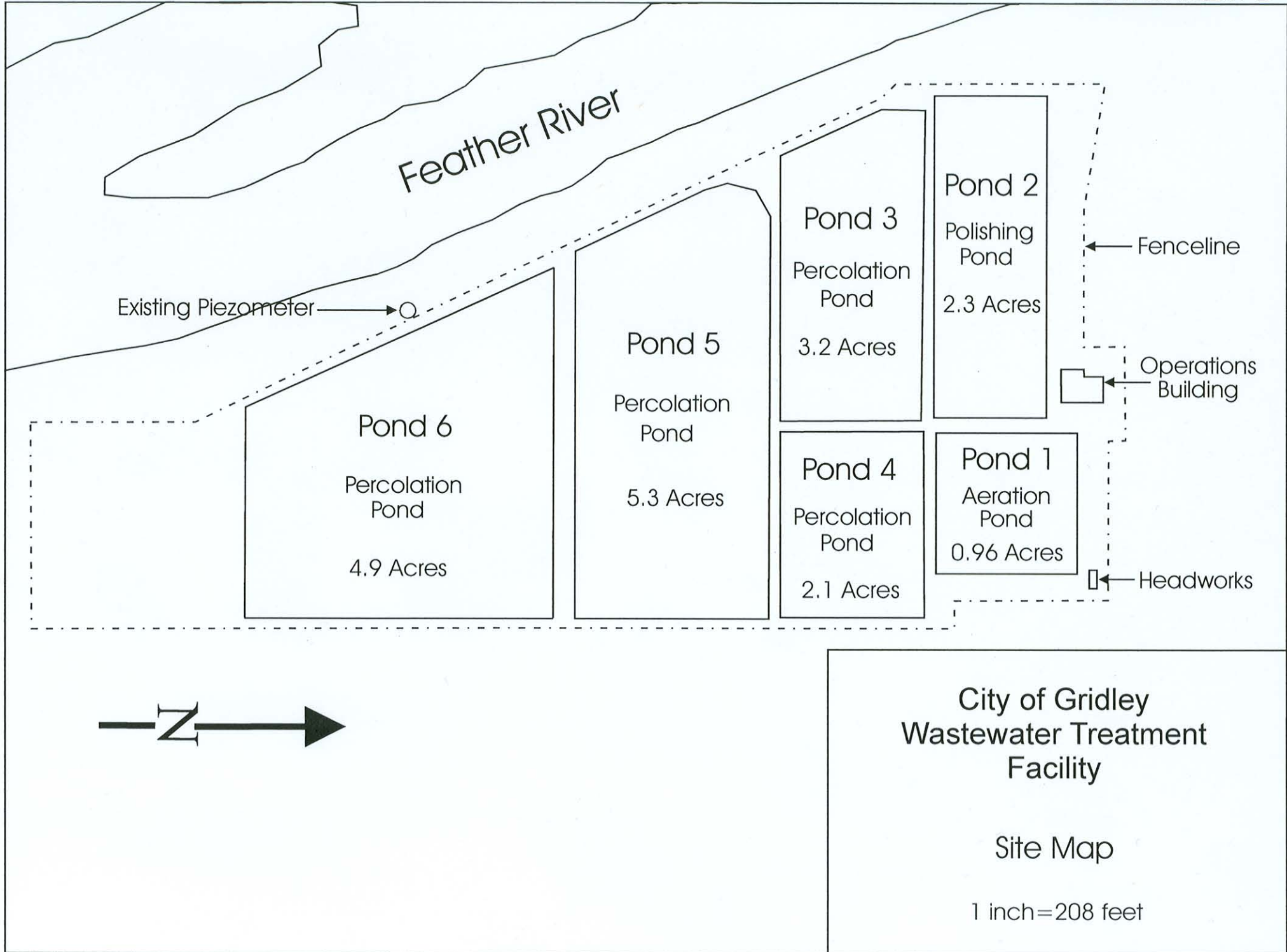
Water quality sampling of the Feather River was performed on 23 and 31 March 2006 and 24 February 2006. The Feather River flow rates were 12,000 cubic feet per second (cfs), 18,000 cfs, and 4,500 cfs, respectively. Sampling was performed 200 feet upstream and downstream of the treatment plant. Polishing pond effluent samples were also taken on the same day as samples were taken from the Feather River. The polishing pond effluent and Feather River samples were analyzed for total nitrogen, specific conductance, BOD, carbonaceous BOD, total Kjeldahl nitrogen, nitrate and nitrite, total coliform, and fecal coliform. The results showed minimal increases in coliform levels downstream of the treatment plant.

Groundwater elevation and potential mounding under the wastewater ponds are somewhat unknown. This permit requires the installation of piezometers between several of the disposal ponds to monitor groundwater elevations and any mounding that may occur. Installation of monitoring wells is also required. The Central Valley Water Board may reopen this Order to reconsider groundwater limitations and treatment processes if it is determined that the discharge from the WWTP is adversely impacting the underlying groundwater and/or the Feather River.

JMM: sae
12/13/06



City of Gridley
Butte County
Sections 3 & 4, T17N, R3E, MDB&M
USGS 7.5' Gridley Quad
Scale: 1"=2500'



**City of Gridley
Wastewater Treatment
Facility**

Site Map

1 inch=208 feet